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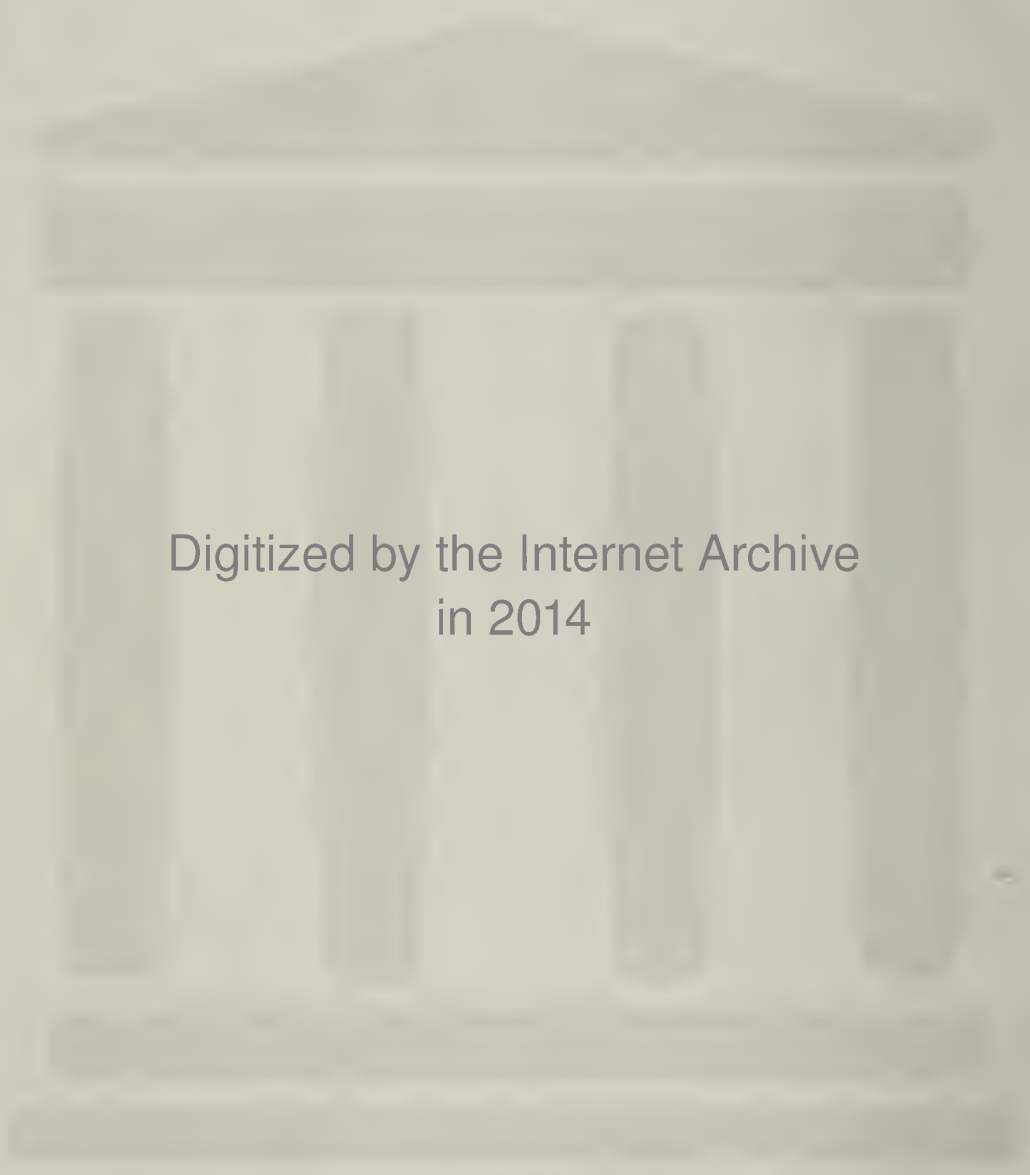

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PROCEEDINGS

Semi-Annual Meeting
of the
Colorado Veterinary Medical Association

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FEB 18 1921

Held at
Fort Collins, Colorado
May 28-29, 1913

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PRESIDENT'S ADDRESS

(A. B. McCapes.)

Gentlemen:

As President of your Association, it devolves upon me to make what is known as an annual address. Those who know me know I am not a speaker, just a common "horse doctor," and to try to make an address before such an intelligent audience would make me look like thirty cents. However, it gives me great pleasure to meet you here today. I see before me, NOT MANY, BUT A FEW faces who were present when this Association was formed in 1903 with sixteen members present. Those times we well remember, for we had many complex questions for our consideration. Some of those questions are still before us, unsolved; some we have solved as best we could, and we are still striving to make this Association one of credit to the profession, and a power for the good of mankind as well as to the animal to which we are called to treat.

From those few who were present when this organization was formed we now have many new members, until our roster numbers forty-eight; many of those are men who have acquired the knowledge of their profession from our own State College, which has been so ably and admirably conducted, that those going forth from its doors with their diplomas need have no fear as to the future, provided they, like we, must ever be students, ready to grasp the new thoughts and ideas which come to us day by day and disseminate the facts therein contained.

For true it is, the veterinary profession is going forward by leaps and bounds, and no one can prophesy where the end will be. We of the older class can look backward and see many changes that have taken place in the last thirty-five years, many of them in the last few years. By change I mean new knowledge of diseases and new methods of treatment.

We are gathered here today for two reasons, first of which is the benefits we hope to derive from an acquaintance with our brother practitioner, to note his ideas, whether they be new or old. Many times something new develops from something old.

The second reason is the good will and fellowship obtained. A day from our worry and care, when we may all shake the hand of friendship and go to our homes and work, feeling stronger in mind and body.

We have many things to be thankful for. First of all, that death has visited our ranks but once since we became an association, and in that instance the Almighty God knew what was best, for it relieved a brother from a life of lingering illness for which there seemed no help.

We have reason to be thankful for the progress made, that no dissensions have arisen to tear us asunder, that no member has allowed himself to act or do other than as a gentleman.

And now may we ever strive to so conduct ourselves in the future that no one can point the finger of scorn at us and say that we, as individuals or as an association, have done anything unbecoming our professional dignity.

I thank you.

BUSINESS MEETINGS

The semi-annual meeting of the Association was called to order at 9:30 a. m., Wednesday, May 28, in the Pathology building of the Colorado Agricultural College by Dr. V. J. Ayres, acting president. The minutes of the previous meeting were read and approved.

The committee having in charge the purchase of a suitable emblem for our ex-presidents was called on for a report. Dr. Geo. H. Glover, chairman, made a number of suggestions as to an appropriate emblem and then moved that the committee be given power to purchase emblems and have the bill paid by the Association. Seconded by Dr. Whitehouse. Carried.

Dr. Glover, as chairman of the committee to look into the matter of a federal constitution for the A. V. M. A., whereby state associations should have voting representation therein, reported progress and, after some discussion, Dr. A. W. Whitehouse was added to the committee and the committee continued until the next meeting.

Dr. Ayres, as chairman of the program committee, reported that he had written to seventeen members for papers, with only two favorable replies. It was moved by Dr. Glover that the program committee be abolished and in future the Secretary be instructed to prepare the programs. Seconded and carried.

Communications were read from Dr. B. F. Kaupp and the State Civil Service Commissoin, relative to resolutions passed at the last meeting.

A resolutions committee, consisting of Drs. A. W. Whitehouse and A. B. McCapes, was appointed.

The matter of the Association paying for the lunch furnished the second day of the meeting was brought up. It was moved, seconded and carried that the Secretary be instructed to pay all proper expenses of the meeting.

PATHOLOGY BUILDING
2 P. M.

Dr. A. B. McCapes, presiding.

Roll call.

The president appointed Dr. Chas. G. Lamb to take his (the president's) place on the resolutions committee.

The president then delivered his annual address.

Papers were read on "The Intradermal Test for Tuberculosis," by Dr. Geo. W. Dickey, and "The Veterinary Medical Profession and Association of Colorado," by Dr. A. G. Fisk. Dr. Dickey's paper provoked a long and spirited discussion, which was participated in by all members present. Those members who had tried the intradermal test were strongly favorable to its wider use, even to the point of making it the official test of the State.

Moved by Dr. McCapes that the proceedings of the meeting be printed and sent to the members. Seconded and carried. This was amended to include the outcome of the clinic cases.

Dr. McCapes presented an amendment to the constitution, providing that after January 1, 1914, the Secretary should be paid an annual salary of $20.00, and that the dues be raised to $3.00 per year. This will be voted on at the next meeting.

Dr. Maurice C. Hall, a parasitologist of the Bureau of Animal Industry, being present, was called upon for a few remarks. He told us that at present he was working on the fringed tapeworm of sheep, particularly with a view to discovering the intermediate host. So far he has been unsuccessful in his efforts, but he has fitted up a laboratory in Colorado Springs and proposes to stay with it until he gets results.

On motion a committee, consisting of Drs. Lamb, Dickey and Whitehouse, was appointed to fix a standard price for administering the tuberculin test. They reported as follows: Five dollars for the first animal and two dollars per head for each additional one up to ten, then one dollar additional for each one above that number. The same price to be charged for intradermal as for subcutaneous tests. Adopted.

Owing to the fact that the clinic consumed so much time, no business meeting was held on the second day, and consequently the resolutions committee did not report.

PAPERS

INTRADERMAL TUBERCULIN TESTING

(Geo. W. Dickey.)

The present general movement against tuberculosis, one of the most helpful, if not the most promising of all the modern efforts for the temporal salvation of the human race, owes much to animal experimentation. Everything that has a direct bearing on the prevention of tuberculosis, everything that has changed man's attitude toward it from one of apathy and hopelessness when the infectious agent that produces tuberculosis was unknown and the disease was thought to be inherited and always fatal, to the growing hope of its ultimate conquest. It was animal experimentation that first showed that the disease was an infectious one, that it was communicable and therefore preventable, and which paved the way for Koch's discovery in 1882 of the tubercle bacillus. In 1893 animal experimentation also led him to the conviction that the production of artificial immunity against tuberculosis, which had been looked on as impossible, was not as unattainable as had been supposed, and since that time the experience of experimenters in other lands has only strengthened and confirmed this belief, and this is not the end. Dr. Trudeau points out a fact well known to physiologists that inoculation experiments entail no greater suffering to the animal than the prick of the hypodermic needle and then a painless death, if to be killed, or a death from tuberculosis, to which it is always liable if it be allowed to live.

The short-sighted ignorance of the objectors to this work is self-evident. They would trust their families' welfare and comfort to medical science unaided by this great means of saving life, and yet object to the slightest apparent suffering of rabbits and guineapigs.

If we can help save future generations from the curse of the great white plague, even partially, would the sacrifice of hundreds or thousands or any number of experimental animals be too high a price to pay? As ex-President Andrew White has said: "One would sacrifice hundreds of

fleas for the comfort of one faithful dog, and would it not be equally proper to sacrifice any number of dogs for the life and comfort of the human race." We cannot get away from the fact that we have tuberculosis in our herds, despite the fact that a great many of our illustrious law-makers in various states deny it. I think that it remains for us, the veterinary profession, to detect it and eradicate it from all animals furnishing our food supply, and thus protect the life and health of the human race.

There are many different tests for tuberculosis. In 1907 von Pirquet announced at a meeting of the Berlin Medical Society his discovery of the Cutaneous tuberculin test, which consists of a superficial scarification of the skin through a drop of the old tuberculin and the subsequent appearance in those afflicted with tuberculosis of a characteristic papule at the point of inoculation.

At this time Wolff-Eisner and Calmette demonstrated a similar phenomena in the conjunctiva of tuberculous individuals and this was soon followed by various modifications of the original von Pirquet test by a number of investigators, as Moro (Precutanous test with salve containing fifty per cent. tuberculin) Lignieres (rubbing five or six drops of undiluted tuberculin under the skin) etc., all these tests being based on the now accepted idea of wide distribution, of specific antibodies in the organism of the infected individual.

In 1908 Mantoux, in experimenting with the intradermal test, reports his findings of the test of 246 adults and 47 children, that the local reaction is extremely characteristic and the technique can be made more exactly uniform than with certain other methods. The technique is free from dangers of the ocular reaction and is much more reliable, he states, than the ordinary cutaneous test. This specificity and sensitiveness have been proved in clinic by comparisons with autopsy findings and with results of other tests and by the findings of the tests on 70 cattle, 23 swine, 4 goats, and 6 lambs; a total of 103 animals.

In 1909, Romer modified for the clinic the method of intracutanous application of tuberculin, practiced by Lignieres of Buenos Aires, on cattle The findings are identical with those of the subcutanous test.

Dr. Thomas DeWitt Gordon says the skin test in adults should not be discarded as an index to tuberculin sensitiveness, having given results which had agreed very closely with those obtained by the subcutanous test, and it can be given in many cases in which the subcutanous test may not be either convenient or advisable. Dr. William Charles White and Dr. K. H. Van Norman in their conclusions have said: "It is just as possible to obtain a constitutional reaction from tuberculin placed on the skin as from tuberculin introduced beneath the skin."

In 1910, A. R. Ward, University of California, and G. S. Baker, of the Bureau of Animal Industry, made a test on a hundred head of range cows shipped for slaughter and placed at their disposal for the purpose of studying the intradermal test. The cows were afterwards slaughtered to check the accuracy of the diagnosis. As the result of these autopsies, they confirmed twenty-eight out of thirty cases. Of four reactions which were considered questionable, three proved positive on postmortem examination, in two that were considered positive, no lesions were found, and fifty-nine which they considered non-reacting proved negative on autopsy. Seven considered negative showed lesions. They believe that with their present knowl

edge and experience the number of those diseased and passed as negative would be materially reduced.

Dr. Lucky, of Missouri, in the March number of the American Journal of Veterinary Medicine, says: "The old subcutanous or thermal test is so unsatisfactory in so many different ways as to give due cause for rejoicing at the discovery of a simpler test and one that promises to be more accurate. We have diligently tried out every test that has been mentioned in the veterinary literature. As soon as what is known as the eye test was announced we gave it a thorough trial and found it inaccurate. About the same time we tried the skin test; this also fell short of accuracy. Naturally, when the intradermal test was announced, we hoped it would prove a success, but with the failure of the ophthalmic and cutaneous tests fresh in our minds we were skeptical about it. We therefore began its use with extreme caution. We had so little faith in it that we never thought of using it at all except to compare with the temperature before the animal was condemned. Results were surprisingly satisfactory from the beginning. We looked for a chance to give it a severe trial. For this purpose we selected an old herd that we reasonably suspected to be badly affected with tuberculosis. Fifty-nine of the old animals in the herd were given the intradermal test. One reaction resulted. We were ready to discard this test without further trial, but we followed up in a few days with the subcutaneous test and, strange to say, got a slight temperature reaction in the same animal and no others. The reaction from the intradermal test was more marked than from the temperature test, the latter giving what was originally considered a suspicious reaction. The cow was old and practically worthless and therefore condemned on the suspicious reaction of the temperature test. Our doubt about the accuracy of both reactions was increased for the reason that the cow had been in the herd for a number of years and none of the other animals had been affected, which is directly contrary to the general rule. On slaughter she showed a tuberculous lesion of the liver, thereby strengthening our faith in the intradermal test and explaining why the other cattle in the herd had not become affected. We began the intradermal test on lots of cattle scattered throughout the country, but never thought of condemning an animal showing a reaction until the temperature test had been applied. We soon found that the confirmation of the intradermal test with temperature was superfluous and unnecessary, but for the sake of trying the matter out thoroughly, we continued to carry the temperature test along with the intradermal test in diseased herds. After we began testing in the vicinity of Columbia, we ventured to rely on negative results from the intradermal tests on all cattle with a good history. Before finishing the work around Columbia, however, we abandoned the temperature test and used the intradermal test altogether. Several lots of cattle were tested, in all 3,458 head; 138 head were condemned, 103 of these condemned cattle, at this writing, had been slaughtered and there were lesions of tuberculosis visible to the naked eye found in all but two. Considering the slaughtered animals alone, the intradermal test has made two errors in one hundred and three autopsies, a little over 98 per cent. accuracy. Granting that one more animal will show no lesions, making three in all, we shall have made three errors in testing 3,458 head of cattle. This is far better than we have ever been able to do with the temperature test." Missouri has adopted this as an official test.

Dr. John F. McKenna, in a paper read before the annual meeting of the California Veterinary Association, says: "During the last several months we have tested about 1,500 head of cattle with the intradermal test, and on several occasions I have verified it by autopsy and found it accurate in every instance."

The above instances verify my findings of the last three years. I have used it on something over three hundred head, following it a few days later with the thermal test, and it is my belief that the intradermal test is the more delicate of the two. In seven instances I had reactions, four of these I had the privilege of posting. Of one of these I wish to speak particularly. The subject was a small, brown cow, part Jersey and part Swiss, three years old. I gave her the intradermal test and could not say that the reaction was positive at the time, as the test was new to me then. Five days later I gave her the thermal test, taking four temperatures the first day and eight the last day, and at no time did her temperature the last day exceed that of the first day by more than nine-tenths of a degree. I condemned her and saw her slaughtered. She had a tubercle in the udder and if it had not been for the intradermal test this cow would have passed.

Another was a black heifer that I gave both tests to and found the T. B. in several places. She had been experimented on with a view to immunizing her against tuberculosis. In this case both tests were positive.

The next was a red cow. I knew nothing of her history at the time and did not know the man had bought her since I had last tested his herd. She reacted to the intradermal test and I thought that I must have made a mistake. But in retesting her with the thermal test in five days she again reacted, was slaughtered and found to have bronchial glands actively infected.

The last I will mention is a black heifer two years old. She had also been submitted to inoculation with a view to immunizing her. She reacted most beautifully to the intradermal as well as the thermal test. She was afterwards slaughtered and three of us hunted an entire afternoon, but were unable to find the point of infection.

The other three reactors were returned to the man who was selling them, and I afterwards lost track of them.

The technique of the intradermal test is not difficult. I generally stand on the right side, take a pinch of the skin at the root of the tail in my left hand and the hypodermic with a half-inch, 26-gauge needle in my right hand. Inserting the needle between the layers of the skin as near the outside surface as possible without it coming through, I draw the needle back just a little, press the plunger till I make a little raised spot at the end of the needle, then pinch the skin up at the point where the needle will come out at and withdraw the needle. The tuberculin I have used is either Mulford's or Cutter's. It is the old tuberculin purified. Then I go back on the second or third day; I think the third day is best, and either tie the cattle up or run them through a chute, lift up the tail and compare the two sides. In a tuberculous animal a swelling appears which varies quite a good deal in size, but is sufficiently large as a rule to be easily seen. The swelling is hard, painful, and sometimes extends around to the upper surface of the tail and remains from five to fifteen days. There seems to be little danger from infection and when you get any, the nature of the swelling is entirely different. It is soft and fluctuating and disappears in two or three

days. My experience in all forms of tuberculin tests is that an animal will now and then fail to give a clear-cut reaction, either positive or negative. While the tuberculin test seems to be a very simple matter, and farmers and students are inclined to undertake it, it really requires a high degree of skill, judgment and care if accurate results are to be obtained. Neither a veterinarian nor a layman can jump in and make tuberculin tests and do the most accurate work at the beginning. There are so many outside influences which must be taken into consideration which require a previous knowledge of like cases.

In conclusion I want to say that I am opposed to the yearly testing of dairy herds. I think it is robbing the man with the clean herd and robbing the public health in the case of the unclean herd.

My theory is that every herd should be tested every sixty days from the finding in it of a diseased animal until no animal reacts from two successive tests, the place and herd to be thoroughly disinfected after every test. They will be given at this time a bill of health for one year and if at the expiration of that time his herd is still clean it shall be considered to remain so unless animals which have not undergone a similar test and been found unaffected have been added to it.

Gentlemen, we must bear in mind that human lives are endangered by tuberculosis in cattle and this is not a matter where the question of fees is of any importance It has been argued that the tuberculin test is not accurate, that we have acted dishonestly. If we would attain the highest success and maintain the reputation of the veterinary profession it will be necessary for all of us to be extremely careful, to be exceedingly accurate and conscientious in making tuberculin tests and to regard the matter in its true light, and not as work promulgated to get fees for veterinarians.

THE VETERINARY MEDICAL PROFESSION AND ASSOCIATION OF COLORADO

(A. G. Fisk.)

Mr. President and Gentlemen:

The title of this paper probably suggests to you a nice, long and tiresome history, perhaps to some extent correct, but in the main more or less of a dream. Such, however, is not the case. Were I as capable of giving you a history of this organization as many present today, and had I the graphic powers necessary to such an undertaking, I should have incorporated it in these remarks, for I feel sure it would not be out of place. I shall, therefore, leave the history entirely to the imagination of the younger members and do it no injustices to the minds of those of you who really know and helped make it.

In choosing this topic as the subject of this paper, I realize the magnitude and also the delicate nature of the problem I am attempting to discuss. I am also aware of my lack of ability to do it justice; and yet, when you have heard me through, I am sure you will believe that it is with the sole aim of advancing our standing in the community and carrying out the principles of all kindred associations, and this one especially, that I make bold to offer my views on the subject.

Article two of the constitution of the American Veterinary Medical Association, which reads: "The objects of this Association are to promote good fellowship; to elevate the standards of veterinary education; to cultivate medical science and literature; to enlighten and direct public opinion regarding veterinary problems of state medicine; to protect the material interests of the veterinary profession and present to the world its achievements"; is a well worded expression of the principles of our own Association. However, there are three questions that occur to me, and they are: First—In our own Association are these principles uppermost in our minds and evidenced by our actions at all times? Second—Is it possible to be good Association members and successful professional men at the same time? Third—If it is possible to answer yes to the second question, why is it that we are so slow in getting together even on questions vital to all as individuals? There are several other questions that I should like to ask and have answered, but I have started about all and more than I can handle, I am afraid.

I shall try to handle these three questions in such manner as to prove to our entire satisfaction that we can answer yes to the second question and also do yes to it. I believe that every veterinarian in Colorado is living and practicing with the aim to personally do his best to make the profession honored and respected. I also believe that there are a good many, myself included, who are not doing all they can to attain the end nominally in view when the Association was formed. I mean by this, that, though we are doing what we can individually, we are not pulling together well enough to get the results we want.

This brings us to our third question, and to change the wording a trifle, why has it taken the profession in general, and us in particular, so long to appreciate the necessity of the control of the individual member of the profession by the whole, or the Association? This, more or less modified, is positively necessary before we can be generally recognized as an honorable professional body or component parts of such a body. In part, our trouble has been, up to within ten years ago, a lack of general education and the resultant petty jealousies. Thanks to the efforts of the leaders of the profession, through the national organization and other channels, this is no longer an excuse. There are other reasons that help to complete the answer to this question, but, instead of attempting to give them myself, let me ask if we can't find the balance of the answer by doing a little self-analysis? Can we not all see evidences of what unselfish and united effort has done for a thousand different lines of business or profession? Are you entirely satisfied with your standing as a professional man in this western country? And if you are not satisfied, who is more likely to be of benefit than the other members of your own profession in getting the desired results if you give them your confidence? If this be true, why not everybody work to get all the rest into the Association and when we get them in, all work in unison?

This brings us to the second question, namely, can we be successful professionally, which must include financial success, and be what I will call good Association members? I believe we can and must to get the most out of our profession. "Money makes the mare go," but all the money out would not pay you for losing the satisfaction of having the respect of your fellow men. That we can all have, whether we are veterinarians or lawyers,

but at present does the fact that a man is a veterinarian add to the respect which his chance acquaintances hold for him? It should and would if we all did our part in the right way. Every thing of consequence in the history of the world has been gained, not by the labor of one individual, but by the united efforts of many. We want many things, but above all we want a higher rating. Those men in the profession who stand highest in their community on account of personal worth or attainment are the keenest for a higher professional recognition. To have this hope realized soon, as it surely will be in the course of time, we must do more Association work.

I believe it pays in cash to attend the meetings and to practice the much-scoffed-at professional ethics. Our gain from attending a meeting is multiple; we learn new methods, new application of old ones; we are rested and refreshed and go back to our work with new energy which, in itself, is an asset. I do not mean by this that to be a good Association member one has to attend every meeting; this, in itself, does not constitute a good membership; it is the way we feel towards our fellow practitioners and act towards them and our clients and other associates that counts for or against us as a profession.

We are now back to the first question: Do we, even the most active Association members, take the interest in the general welfare of the profession as represented by the other members scattered over the State that we should, to have them feel that their interests are ours and to feel ourselves that our interests are theirs? The answer to this I shall leave to you also, for I do not wish to pose as the solver of problems, as these are beyond the solution of any one of us alone If I have succeeded in putting this proposition before the Association so as to eventually increase the interest in it, even a very little, and I live long enough to see ever so slight an improvement in the standing of the profession, the aim of this paper will have been accomplished. Our goal is a stronger, better and more honored profession, which I sincerely believe can only be reached by a bigger, stronger and truer association.

CLINIC

The clinic was held at the hospital of the Veterinary Division of the Colorado Agricultural College and was in charge of Dr. H. E. Kingman, to whom we are indebted for this report. Each case was assigned to two students, a Junior and a Freshman. It was the Freshman's duty to see that the animal was kept clean, properly fed, and on hand at the proper moment. The Junior prepared fields for operation, attended to the instruments and dressings needed, followed general instructions of the operator and administered the anæsthetic. By this method of handling the cases there was no time lost in preparation or other unnecessary delay; the case was always on hand, prepared according to instructions, and as a result ten operations were performed in one forenoon. Operators were chosen from the members of the Association. All were given a chance to examine each case and advise in regard to the treatment.

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CASE 1

Bitch—Pomeranian.

History—Right hind leg had been crushed and when presented at the hospital showed a compound comminuted fracture of the tibia and fibula. The animal was given morphin sulf. 1 gr., hyoscin hydrobromide 1-25 gr., and ether to complete the anæsthesia. The hair was clipped, a tourniquet applied above the wound, the muscles and skin were cut in the shape of a V, the post. tibial artery was ligated with No. 1 cat gut and about an inch of the tibia removed with a saw. The entire surface was then sponged and dressed with tincture of iodine. The muscles were drawn together with cat gut and the skin united with silk. The wound was then covered with sterile gauze sponges held in place by a bandage. The muscles united perfectly by first intention, but about an inch of the skin wound became infected and was dressed with dry dressing. Animal recovered.

CASE 2

Dog—Collie—Two Years.

History—The right thyroid had been removed and found to have been cystic. Following the operation the left lobe seemed to decrease in size, but recently had been enlarging.

Dr. Woodliffe, of Denver, took charge.

One hour previous to the operation the dog received morphin sulf. 1 gr., hyoscin hydrobromide 1-25 gr. The field was clipped and painted with iodine. A sterile canula was inserted and about three ounces of dark brown fluid escaped. The following solution was then injected through the canula: formalin 4 c. c., glycerine 30 c. c.

The dog showed evidence of pain for two days, but at the end of two months the goitre showed no signs of recurrence.

CASE 3

Bitch—Coach—Three Years.

History—Presented at the hospital two months previous to the meeting for treatment of goitre. Left lobe was removed and found to be very vascular, but showed no microscopic signs of fibrous or cystic change. Right lobe was enlarged at the time of operation, but was about normal when presented before the clinic. An attempt was made to preserve the parathyroids, but union by first intention was not secured and it is possible that the parathyroids were sacrificed as a result of the suppuration. However, no untoward signs have appeared at the end of two months.

CASE 4

Bitch—Bull Terrier—Two Years.

History—Spayed a year ago, still comes in heat.

Dr. Fisk, of Trinidad, operator.

Bitch received 1 gr. morphin sulf., and 1-25 gr. hyoscin hydrobromide one hour before the operation. Ether was necessary to complete the anæsthesia. The field was prepared for an exploratory operation. A cicatrix one and one-half inches long was found on the median line; the skin was painted with tincture of iodine and a three-inch incision was made on the median line. The broad ligament on the right side held a small piece of

tissue that seemed to be a part of an ovary; the broad ligament of the left side enveloped a cyst as large as a marble that was embedded in ovarian tissue. Both pieces were removed and the wound closed. The bitch recovered and two months later the owner stated that there were no signs of the return of heat.

CASE 5
Bitch—Irish Spaniel—Nine Months.

Ovariotomy.

Dr. Dillon, of Pueblo, operator.

Bitch received morphin sulphate 1 gr., hyoscin hydrobromide 1-25 gr., and ether at the time of the operation.

No special features; bitch recovered.

CASE 6
Gelding—Draft—Two Years.

Dr. Kingman, Fort Collins, operator.

History—Condition of two years standing.

Symptoms—Area over the left frontal sinus slightly bulged, more air passing through the right nostril than through the left, purulent discharge from both nostrils. Examination with nasal speculum negative; stomach tube could be passed only with difficulty on the left side and seemed to meet a definite obstacle at the posterior nares; examination of the posterior nares per orem, however, was negative. Exploratory operation decided upon. Left frontal sinus was trephined and opening enlarged with rongeur. Sinus was filled with sanguinous purulent fluid. Through the opening into the superior maxillary sinus toward the posterior nares could be felt a soft mass as large as a hen's egg, which was broken down with a curette. A large amount of thick pus escaped through the trephine opening; the sinus was flushed out with a 5 per cent. liquor cresolis solution and the animal allowed to rise. No change in breathing at the end of a week. A second operation was performed and communication was established between the frontal sinus and the superior nasal meatus, but this did not relieve the breathing. At a third operation an attempt was made to establish communication with the posterior nares, but this failed. Removal of the superior turbinated bone was contemplated, but not attempted. A permanent trachea tube was inserted and the case dismissed at the end of two months from the time of the first operation.

CASE 7
Gelding—Light Harness—Two Years.

Diagnosis—Spavin of long standing.

Veterinarians present could not agree in regard to the treatment and prognosis, so the case was dismissed after much discussion and no treatment.

CASE 8
Horse—Male—Draft—Two Years.

Operation—Standing castration.

Operator, Dr. Converse, Castle Rock.

Nice operation, no special features; case recovered.

CASE 9
Horse—Draft—Male—Two Years.

Operation—Castration.

Operator, Dr. Williams, Gunnison.

The Doctor demonstrated his method of restraint and castrating. An extra hobble was placed on the right fore foot and the rope from the harness on this side was passed through a ring in the hobble, then to the ring in the harness and back to the hind foot in the usual manner. Case recovered.

CASE 10
Mare—Draft—Two Years.

Diagnosis—Umbilical hernia.

Operator, Dr. McCapes, Boulder.

Animal was cast, the field clipped and painted with tincture of iodine. Sterile wire skewers were passed at right angles through the hernial sac, a chalk line was placed over the skewers and drawn as tight as possible. This had to be tightened several times later and the slough took place on the seventeenth day. The animal recovered and the hernia is reduced.

CASE 11
Horse—Male—Two Years.

Diagnosis—Cryptorchid.

Dr. McCapes demonstrated his method of castrating. (Described in the August number of the Review, 1912.)

Case recovered.

CASE 12
Cow—Jersey—Three Years.

Diagnosis—Infectious granular vaginitis.

Clinician, Dr. Whitehouse, Fort Collins.

A typical case showing granules on the mucous surface of the vulva, and a muco-purulent discharge. Still under treatment at the end of two months with some improvement.

A surgical subject was provided for the members of the Association and each man was given a chance to do any operation that he chose. This proved to be one of the best features of the meeting, judging from the interest and participation shown.

Finally Dr. McCapes demonstrated his method of operating upon a cryptorchid, using the surgical subject which, to our surprise, turned out to be a cryptorchid. The Doctor has a number of features about his operation that seem to be clearly in advance of any method so far described.

ENTERTAINMENT

The members were met at the C. & S. train on the first day of the meeting, where they were taken in automobiles (sixteen in all) to the U. S. Breeding Station. After examining a number of the animals there, they were taken for a drive about the city, finally winding up at the Northern Hotel, where we sat down together for lunch.

At 6:30 p. m. of the first day, we assembled at the Masonic Temple as the guests of the Veterinary Medical Association of the Colorado Agricultural College. An excellent repast was provided, after which a toast program was given. Dr. Geo. W. Dickey represented the Colorado Association in the speech-making. The tables were then cleared away and until the early hours the members danced to beautiful strains of orchestra music.

At noon on the second day the Association served lunch on the College Campus.

OFFICERS

A. B. McCapes.....President
R. N. McCarroll..First Vice President
A. G. Fisk.....Second Vice President
I. E. Newsom....Secretary-Treasurer

MEMBERS PRESENT

V. J. Ayres
C. L. Barnes
W. G. Blake
T. H. Brady
A. N. Carroll
C. W. Converse
G. W. Dickey
L. R. Dillon
A. G. Fisk
G. H. Glover
F. D. Hylton
H E. Kingman
Chas. G. Lamb
A. B. McCapes
R. N. McCarroll
N. J. Miller
I. E. Newsom
J. D. Paxton
A. W. Whitehouse
M. J. Woodliffe

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PROCEEDINGS

FOR THE YEAR
1914

Colorado Veterinary Medical Association

Edited by the Secretary

UNIVERSITY OF ILLINOIS
FEB 18 1921

Annual Meeting at Denver
Thursday, January 22

Semi-Annual Meeting at Fort Collins
Thursday and Friday, May 28 and 29

OFFICERS FOR 1914

A. G. Fisk, Trinidad ---------- President
A. P. Drew, Grand Junction ---- First Vice President
F. D. Hylton, Longmont ------ Second Vice President
I. E. Newsom, Fort Collins ---- Secretary-Treasurer

EXECUTIVE BOARD

V. J. Ayres ---------- Sterling
Fred Gilgen ---------- Eaton
L. R. Dillon ---------- Pueblo

MEMBERS

V. J. Ayres ---------- Sterling
C. L. Barnes ---------- Fort Collins
A. G. Brocker ---- Steamboat Springs
R. H. Bird ---------- Greeley
I. L. Barstow ---------- Brighton
T. H. Brady ---------- Lamar
W. G. Blake ---------- Johnstown
W. S. Craig ---------- Paonia
Chas. W. Converse ------ Franktown
F. W. Culver ---------- Longmont
A. N. Carroll ---------- Pueblo
G. W. Dickey ------ Colorado Springs
M. J. Dunleavy ---------- Denver
L. R. Dillon ---------- Pueblo
A. P. Drew ---------- Grand Junction
A. G. Fisk ---------- Trinidad
E. J. Foreman ---------- Trinidad
Geo. H. Glover ---------- Fort Collins
Fred Gilgen ---------- Eaton
A. H. Griffiths ---------- Montrose
F. D. Hylton ---------- Longmont
A. A. Herman ---------- Littleton
H. E. Kingman ---------- Fort Collins
Percy Lamb ---------- Denver
Chas. G. Lamb ---------- Denver
A. N. McGregor ------- Fort Lupton
R. N. McCarroll ---------- Fort Collins
J. F. Meinzer ---------- La Jara
A. B. McCapes ---------- Boulder
N. J. Miller ---------- Windsor
L. G. McClain ---------- Manzanola
I. E. Newsom ---------- Fort Collins
John D. Paxton ---------- Ouray
D. C. Patterson ---------- Sterling
Irving A. Phinney ---------- Loveland
T. F. Quinn ---------- Greeley
Geo. L. Richards ---------- Ordway
Thos. Rimmer ------ Colorado Springs
A. J. Savage ------ Colorado Springs
Wm. Schumacher ---------- Durango
Chas. C. Stewart ------- Castle Rock
O. W. Seher ---------- Fowler
R. L. Van Sickle ---------- La Junta
A. W. Whitehouse ------ Fort Collins
M. J. Woodliffe ---------- Denver
A. G. Wadleigh ---------- La Junta
Ira Watts ---------- Longmont
M. J. Warner ---------- Denver
W. W. Yard ---------- Denver

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FEB 18 1921

ANNUAL MEETING

Denver, January 22, 1914

Rooms of The Gentlemen's Riding and Driving Club

BUSINESS MEETING

In the absence of all other officers the meeting was called to order at 10:25 A. M. by the Secretary, who declared nominations in order for president pro tem. On vote of the Association, Dr. A. J. Savage was elected and took the chair. The roll was called, after which the Proceedings of the Semi-Annual Meeting as printed were adopted as the minutes of the previous meeting.

The Secretary-Treasurer then reported as follows:

At the last annual report there were 43 members. During the year there were added to the roll five new names. One man has removed from the state, leaving a membership of 47.

Two meetings were held during the past year. The annual meeting, a one day's session in Denver, and the semi-annual of two days in Fort Collins.

The financial report will be made from December 15th, 1912, as that was the date on which the funds were turned over by the former secretary. Amount on hand, December 15th, 1912, $120.77. Receipts from initiations and dues, $85.00. Disbursements, $105.10. Amount on hand, January 20, 1914, $100.67. The largest single item of expenditure was $35.00 for the publication of the proceedings of the semi-annual meeting.

Respectfully submitted,
I. E. NEWSOM,
Secretary-Treasurer.

Dr. Glover, as chairman of the committees on emblem for ex-presidents and the investigation of the matter of a federal constitution for the A. V. M. A., whereby state associations might have representation therein, reported progress, after which both committees were continued.

There being no member of the executive board present, the presiding officer appointed Drs. Geo. H. Glover, F. D. Hylton and J. F. Meinzer to serve in that capacity.

Dr. A. G. Fisk, second vice-president, having arrived, took the chair and served throughout the day.

The executive committee reported that they had examined the books and report of the Secretary-Treasurer and found them correct. Further that they had examined the applications for membership of Drs. D. C. Patterson, O. W. Seher, Clarence V. Williams, Irving A. Phiney, Geo. L. Richards and Archie N. McGregor, and recommended favorable action thereon.

On motion the report of the executive board was adopted and the six men named were elected to membership.

The amendment to the by-laws which had for its purpose the raising of the dues to three dollars a year and the payment to the Secretary of a salary of twenty dollars a year, was then taken up. After considerable discussion it was laid on the table until two o'clock in the afternoon when it was thought more members would be present. At that time it was taken from the table and after considerable discussion the amendment was lost. It was then moved, seconded and carried that the Secretary be paid a salary of twenty dollars a year.

It was moved, seconded and carried that a legislative committee of three be appointed by the chair. The chair appointed Drs. Dunleavy, Lamb and Dickey.

Dr. Fisk then moved that the next annual meeting be held in Pueblo, the date to be decided on by the executive committee.

In support of this motion he pointed out that Stock Show was a very busy week for the Veterinarians and that some other time would be advisable. He felt that there would be a larger attendance from the Western Slope and the southern part of the state if Pueblo were selected. This matter brought out considerable discussion in which Dr. Meinzer of La Jara took the view that Denver was the logical place and the week of the Stock Show the proper time. He thought that he could come to Denver about as cheaply as to Pueblo on account of the Stock Show rates and that no stopover would be allowed at Pueblo on an excursion ticket to Denver. Dr. McClain pointed out that of the nine veterinarians in the Arkansas Valley, six were present.

The motion was then voted on and lost.

Dr. Lamb then moved that the Association recommend to the executive board that the next annual meeting be held on Monday or Tuesday of Stock Show week. Seconded and carried.

The matter of the prosecution of unlicensed practitioners was thoroughly discussed. Dr. Dickey of the examining board stated that two cases were to come up shortly at Colorado Springs. Dr. Fisk suggested a public committee to look after this matter and the raising of a fund to aid them in their work. Dr. Drew told of having a friend take a horse to one of them for treatment; of his obtaining a receipt for the money paid and later of the grand jury returning an indictment which latter was never served as the gentleman in question had "flown."

A letter signed by Manford Mott, a non-graduate practitioner of Denver was then read. It was addressed to the Twentieth Century Farmer, offering material for advertising a hog cholera remedy. After hearing the letter, the following resolution was passed:

WHEREAS, It has come to our notice that one, Manford Mott, a non-graduate veterinary practitioner of Denver, has requested "The Twentieth Century Farmer" to advertise for him a supposed remedy for hog cholera, and

WHEREAS, The claims for this remedy seem preposterous, and

WHEREAS, we understand the "Twentieth Century Farmer" refused the proffered advertising;

THEREFORE, BE IT RESOLVED, That we condemn such advertising and deplore the fact that it should have come from our state, and further, that we approve the attitude of the above named paper in regard to questionable advertising and particularly do we approve their course in this case.

The following officers were elected: President, A. G. Fisk; First Vice-President, A. P. Drew; Second Vice-President, F. D. Hylton; Secretary-Treasurer, I. E. Newsom; Executive Board, V. J. Ayres, Fred Gilgen, L. R. Dillon.

PAPERS

THE RECENT OUTBREAK OF ANTHRAX.

(Geo. L. Richards.)

Mr. President and Members:

A report on the recent outbreak of Anthrax in the vicinity of Ordway, Colorado, would not be complete without a few preliminary remarks on the history of Anthrax in this state. For this history I am indebted to Dr. E. N. Stout, B. A. I., Veterinary, stationed at Rocky Ford.

In his opinion this disease has probably existed along the Arkansas Valley for at least twenty-five years. However, this was only a conclusion, arrived at by what the natives of that section said concerning their loss of animals, supposedly from lightning, poison weeds, etc. In April, 1907, Dr. Stout was called to the cattle feeding pens of the Lockhart, Ballentine & Beggs Live Stock Co., at Rocky Ford, where several steers had died suddenly. He made a diagnosis of Anthrax and was able to control the disease by quarantine and isolation. The next outbreak occurred in 1911, during the months of July, August and September. The worst losses were on the A. E. Reynolds ranch, about six miles east of La Junta. He lost ninety-eight head of pure bred cattle and three hundred hogs. Others lost from one to five head. In this case the changing of pastures seemed to do no good, and deaths continued until after the second dose of Pasteur's Vaccine, when they stopped immediately.

This brings us to the recent outbreak. During the month of April, 1913, the disease appeared among the hogs one mile south of Ordway. Through a mistaken diagnosis they were vaccinated for hog cholera and as this did not stop the malady the blood was examined and bacillus anthracis found. On May 22, all the hogs, horses and cattle in the immediate neighborhood were vaccinated with Parke-Davis Anthraxoids. Nine days later, as they continued to die, they were again vaccinated with the Parke-Davis Anthraxoids. This I think was a mistake as it takes from two to three weeks to produce immunity, regardless of the vaccine used. The carcasses in this case were buried and quick lime scattered over them.

About the middle of July, two two-year-old heifers were found dead on the range south of Lake Meredith. Dr. Wadleigh of La Junta and myself were called, but the carcasses were in such a state of decomposition that nothing definite could be determined. Taking all facts into consideration, we concluded that it was black leg, but warned the owner to be on the lookout for Anthrax. All the young cattle were vaccinated with Parke Davis Blacklegoids. Later blood was obtained by the owner from a cow that had recently died, and sent to Dr. Wadleigh, who found anthrax bacilli. All the cattle were vaccinated with Parke Davis Anthraxoids, by a non-graduate practitioner of Rocky Ford. Pastures were changed from Lake Meredith to the Arkansas River bottom between Manzanola and Rocky Ford. But still they died, old and young alike, until sixty cattle and two horses were lost. Of course the owners became discouraged with Parke Davis Oids, and, on the advice of the state veterinarian, sent for Pasteur's double vaccine. Before it arrived, a representative from the Parke Davis house appeared on the scene and explained to the owners that immunity could not be expected until after the eighteenth day, so Pasteur's was not used. None died after the stated time.

On August 10th I was called one mile east of Ordway to see a sick cow. I will describe the symptoms, because they were typical of all the cases excepting two. The owner had driven his cattle up from pasture to milk, and all of them seemed well enough. This one suddenly staggered and fell. When I arrived she was down and in spasms; hemorrhage from the nose and anus, and even through the skin. Temperature was subnormal and she died in about five minutes, proving the peracuteness of the disease. I obtained blood smears from the jugular and spleen, which showed thousands of anthrax bacilli; when stained with Lofflers Methylene blue and examined under the microscope. The barn and corrals were disinfected with a solution of Kreso dip and the animal burned. Two days later all the stock on the place, excepting two sheep, belonging to a Mexican, were vaccinated with Parke Davis Anthraxoids. Strange to say, neither of these sheep took the disease. On August 28th, they were vaccinated again with Pasteur's double vaccine, on recommendation of this treatment to the owner, by the state veterinarian. A heifer died that night. Whether or not this was the result of the vaccination I cannot say. At this same time all the stock in the infected district were vaccinated with Pasteur's double. Quarantine was established and all was quiet for nearly a month. On the

25th of September a four-year-old cow was found dead in a large pasture four miles east of Sugar City. I was called and made a diagnosis of anthrax after miscroscopical examination of blood smears taken from the jugular. The next day 210 head of cattle and horses were given the first dose of Pasteur's double vaccine. Two more died before the second injection, but none after.

This ended the outbreak, although many farmers had their stock vaccinated as a preventative. Absolute quarantine could not be established, because, stock had to be moved to water, farmers had to drive to town, and the disease was on the open range. As the water holes seemed to be the main source of infection, they were fenced, signs were posted, and carcasses burned. I feel that the only effective means of control is vaccination, because the disease is no doubt spread more by coyotes, birds and flies than by the stock themselves. As to the vaccine, I am in favor of Pasteur's single for range cattle, and the double for cattle easily handled. However, the Parke Davis Anthraxoids seemed to be quite efficient in the case cited above.

Altho the disease has completely subsided now, I look for it to appear again, with the advent of warm weather.

DISCUSSION.

Dr. Cleveland called attention to two cases that had come under his observation. Case one, was in a mule owned by a teamster. When seen he had been ailing for three days, was off feed, down and showed muscular spasms, particularly of the head and neck. There was a large swelling over the breast that projected fully eight inches. The skin over this area was leathery. Animal died the following day. Was posted by Dr. Stout and himself; unmistakeable lesions of anthrax being present, the spleen being engorged and black and the blood black and tarry.

Case two was a bay horse, one mile north of Rocky Ford. Owner had previously lost a horse and cow with what was probably Anthrax, but these were not seen. Animal had been sick two days, very weak but no spasms. Large swelling on the breast. Horse died same day. The inference drawn here was that these swellings indicated a transmission by fly bites.

Dr. Lamb then gave a considerable history of Anthrax in the Arkansas Valley, drawing largely from his own experience as State Veterinarian. He stated that in 1905 he was called to Amity, where a number of milk cows had died of the disease. The Valley had been overflown the spring previous. He advised removal to the high lands, after which no more died.

The next year he was called to Las Animas where there was great excitement. A rigid quarantine had already been established by the farmers themselves, which was carried to such a degree that the farmers would not even sell their eggs. On this visit he saw a man who had a large sore on his neck with enormous swelling of the surrounding tissue. This man gave a history of having been engaged in skinning an animal, dead of Anthrax, during which a fly bit him on the neck, and with his hand covered with blood he slapped at the fly. The swelling followed soon after but the man finally recovered. Another man in the vicinity nearly lost his arm from a similar circumstance. The first man had fed the carcass of the animal to his hogs, following which all of the hogs died.

Another outbreak was seen at La Junta and still another at Greeley. He called attention to the fact that the spores of Anthrax were continually present in the Arkansas Valley and might be expected to develop at any time when the conditions were favorable.

Dr. Shaw spoke of an outbreak that occurred three years ago on the north fork of the Gunnison in which eight or ten head of cattle died. The diagnosis was made in the laboratory by Dr. Kaupp.

Dr. Savage inquired how long the immunity lasted from the vaccination.

Dr. Cleveland answered about one year.

Dr. Glover spoke of the great age of the disease, quoting from the Bible to show that Anthrax was prevalent in the earliest times. He said that immunity was only a relative term and that two vaccinations were better than one and that three were better than two, giving as an example of the best kind of immunity, that in rabies vaccination, where eighteen to twenty-three doses were given, each one being stronger than its predecessor. He believed that it would pay to vaccinate more than once. He, however, called attention to the danger of spreading disease by vaccination.

Dr. Lamb then spoke of Dr. Law's article in a recent number of one of our veterinary journals in which he brought out the ever present danger of spreading disease by vaccination. He did not think it wise to use vaccine in non-infected territory but was at a loss to know what to advise for exposed animals.

Dr. Savage called attention to a case that had come to his knowledge in which blackleg vaccine was used on two-year old healthy steers, following which fifteen died.

Dr. Culver believed that not enough attention was paid to the condition and after treatment of animals that were vaccinated against blackleg. He spoke of cases where in one instance three calves died, out of ten vaccinated, within four days after injection and in another where fourteen calves died soon after injection. In both of these instances the calves were fat and were not sufficiently exercised. He called attention to the very small loss from vaccination on the range.

Dr. Lamb spoke of the necessity of supplementing vaccination with exercise.

Dr. Fisk thought laxative diet and even catharsis was indicated following vaccine.

Dr. Carroll told of a case of Anthrax in a buffalo that was confined in the city park at Pueblo, of the difficulties surrounding any attempt to vaccinate such animals and of the subsidence of the disease following disinfection.

PECULIAR DISEASES AMONG MULES.

(A. W. Beveridge.)

Mr. President and Fellow Members of the Profession:

First let me state that the title given to my paper is misleading as the majority of the cases I have to report were horses instead of mules. I can only report symptoms as they appeared to us in this vicinity, to which the disease seemed to be confined. None of the cases of which I have any knowledge were more than three or four miles from Olathe. Other veterinarians in the valley do not seem to have encountered any similar cases in their respective districts. Symptoms in all cases seem to be almost, if not altogether identical, though they have appeared in all seasons of the year, from January to the last of September.

Case No. 1 was called to my attention January 30th, 1913. A gelding about ten years old (that had been running out on winter pasture of beet tops and alfalfa) came up to the corral and was noticed to be uncertain in his movements, and in a few minutes collapsed and never was able to regain his feet again. I did not see him until the next day, when he was too far gone to do anything for him. His urine was very thick and yellow.

Case No. 2 was called to my attention June 1st. A young mule about six year old that had been fed for several days on new alfalfa, only partially cured. On this evening he had eaten his feed as usual, and seemed to be in good health, when, without any warning, he went down unable to rise, even with assistance. He died inside of 24 hours. Soon after going down he began having convulsions at intervals of a few minutes, later becoming comatose.

Nos. 3 and 4 were horses on the same ranch that were taken about the

same way during the following week, and so far as I can learn exhibited similar symptons, though No. 3 did not seem to have it in quite so violent a form.

Dr. Jones of Delta had charge of these two cases (No. 2 and 3) and tried the slings on No. 3. It lived several days, but though the slings seemed to prolong life, did not save it. The partly cured alfalfa was supposed to be the cause of the trouble in these three cases on this ranch.

Cases No. 5 and 6 were a pair of four year old geldings that had been fed from an old stack bottom on June 14th. The next evening one of them went down, after showing a lack of condition for an hour or more previously. I saw him a few minutes later, and gave him some treatment that evening, with instructions to call me up next morning, but at 7 a. m. the following day he was dead. His mate was in harness that afternoon, but did not seem to be acting right as they came in with him, so I was called, but he was down before I arrived. His case was almost identical with that of his mate, though he lived a few hours longer.

Case No. 7 was a mare in the same lot as the last cases, though not taken so suddenly. She seemed to be stiff for several hours before going down, and I was under the impression it was muscular soreness, due to severe work to which she was not accustomed, but she went down toward evening, and I did not see her until the following day. In consultation with Dr. Jones of Delta we decided to try slings. There seemed to be quite a decided improvement as she could stand all right, and in a few days take considerable exercise. She, however, was unable to rise without the use of the slings, and whenever she lay out on her side was almost certain to pound herself and have convulsions. This was kept up for seven weeks, when the owner became disgusted and destroyed her.

Case No. 8. A six year old gelding about 1400 lbs., being fed on good quality first cutting alfalfa, with very little, if any, grain. This horse was in good condition on the evening of August 7th, but the next morning was found down in the corral, and unable to rise or assist himself in any way, showing practically the same symptoms as the preceding cases. His urine was quite thick, and on test showed a specific gravity of 1030 with some albumen. This horse was raised the following day with the slings, which were attached to a 40 foot hay derrick, which allowed him considerable freedom for exercise of which he took advantage. He was let down each evening and allowed to lie during the night. He was given a physic ball which operated satisfactorily, and given large doses of Nux Vomica and alcoholic stimulants. He seemed to improve on this treatment for nearly two weeks, but after that he gradually grew weaker untill the twenty-first day when they were unable to get him to his feet. He was then destroyed.

No. 9 was a large mule used on Government irrigation construction work. These had good alfalfa and oats before them all the time they were off duty. This mule was fat and in good condition. On the morning of September 25th as she was working on a scraper she stumbled and nearly fell a time or two, but the driver did not report the case. Finally she fell the third time, and was unable to rise. Did not seem to suffer any pain. Temperature normal. Urine normal. She lived about 24 hours, with the usual symptoms shown during the progress of the case.

Dr. Griffith of Montrose assisted with a post mortem examination. The abdominal viscera seemed to be practically normal with a slight discoloration at a few points. The brain was the only part that gave us any clew, and there we found considerable amount of straw colored serum in the cavity about the brain.

In all cases occuring in this immediate vicinity we find the following symptoms: Suddenness of attack, lack of co-ordination a short time before, the going down, never being able to rise without assistance no matter how long they lived, very little if any fever, good appetite at most times, and in nearly every case the tendency to convulsions every ten or fifteen minutes after a few hours, if they laid on their sides, with inability to assist themselves to get up, no matter how long they lived. Nos. 1, 2, 3

and 4 I did not treat, but 5 and 6 I treated with stimulants. No. 7, which lived for seven weeks, we started in with iodide of potassium. No. 8 was treated with Nux Vomica and alcoholic stimulants in large doses, and for a time seemed to respond to the treatment. No. 9 was treated with hot applications to the loins, and stimulants.

Though we tried these different treatments, none of them seemed to have any decided result, so we are still looking for more information and help as to how to handle any cases that might come up later.

SHEEP LOSSES IN THE FEED LOTS.

(By Geo. H. Glover, Colorado Agricultural College.)

Mr. Chairman and Gentlemen of the Association:

Lamb feeding has become an important industry in Colorado and in the Fort Collins district alone more than 750,000 lambs were fattened for the market last winter.

The Agricultural Experiment Station, which represents one division of the State Agricultural College, has a project in the Veterinary section known as the "Animal Disease Project" which runs on from year to year and embraces only a casual investigation of animal diseases. This work is really supplemental to that of the State Veterinarian and the incentive which inspires it, is the desire on the part of the Agricultural College to render the greatest possible service to the farmers and stockmen of the state. Funds are not available for the support of this project and the necessary expenses must be taken care of by the beneficiary in order to secure the services of the college veterinarians.

The profits in lamb feeding depend largely upon three important factors:

1st. The purchase price of range lambs, the condition of the lambs when placed on the market and the selling price.

2nd. The price of feed and other necessary expenses in handling.

3rd. The percentage of loss of lambs in the feed lots.

Other things being favorable, on the average, a loss of one per cent in the feed lots is considered nominal and means a satisfactory profit on the investment, but a loss ranging from three to ten per cent, cuts heavily on the profits or may be responsible for a disastrous financial loss for the season. A small loss is to be expected from accidents in handling and other seemingly unavoidable conditions incident to change of feed and environment, but when the losses are as much as five per cent, as they have been in many instances, there is something radically wrong with the sheep or their management.

There has been no wide-spread infection among sheep in Colorado to menace the lamb feeding industry. Necrobacillosis, or "lip and leg disease" as it was commonly called, appeared among sheep in Wyoming and the Federal quarantine interfered with shipments to Colorado but the disease at no time assumed alarming proportions. The condition of sore lips in lambs, when first placed in the feed lots, is not necessarily associated with the bacillus necrophorus and feeders generally give it very little attention.

A few lambs have no doubt died from parasitism and many more because of parasites have not made the gains that they otherwise would have made, but the economic loss from this cause has been negligible.

During the 1913-14 sheep feeding season I personally inspected over 200,000 lambs, where the losses were considered excessive and in a majority of cases a dangerous infection was suspected. Infection was not found, however, and in most cases the fault was easily attributed to mismanagement and more especially to poor judgment in feeding.

We all know from experience how susceptible most of the domestic animals are to digestive and other disturbances from sudden changes of feed. While on the open range lambs are herded under conditions which

furnish a natural habitat. The feed is the native grasses, natural, nutritious and healthful. Water is accessible and the animal can drink its fill without interference. There is exercise of five or ten miles every day and plenty of room without crowding on the bed-ground. When they are brought to the feed lots conditions are all changed; they pile-up in the restricted quarters and become overheated. The feed is changed abruptly to alfalfa which is usually of inferior quality. Within the next fortnight they are expected to begin making gains on a ration of straw and molasses, pea-vine ensilage, sugar beet tops (often mouldy), concentrates of wheat, corn, barley or field peas.

I am satisfied that fully 90 per cent of losses of lambs in the feed lots last winter was caused by too sudden change in food rations, supplemented by other new and untoward conditions, to which they were not accustomed.

When first placed on a grain ration many lambs will not eat it and a few will get more than their share. The mistake is often made of starting in with too heavy a grain ration instead of at first giving only a taste and gradually increasing the feed.

Lambs will easily sicken on molasses and at no time will a heavy sugar ration be tolerated. A certain limited amount of sugar can be digested and assimilated but to go beyond that amount simply means that it will not be appropriated and in its elimination will irritate the intestinal tract causing diarrhoea, and the irritation to the kidneys which is very marked will result in serious structural changes and death in many cases.

Pea vine ensilage for roughage at first represents too radical a change in food elements but after the digestive apparatus has become adjusted to this highly artificial food they thrive on it wonderfully well and it is to be recommended as a cheap and highly satisfactory part-ration for fattening lambs.

Mouldy hay and beet tops have been responsible for the death of many sheep. The beet tops when properly cured and fed in limited quantities are a valuable adjunct to make a balanced ration.

The feeder should always bear in mind that when he takes lambs from the natural conditions of the range and places them under highly artificial conditions, he is jeopardizing the health of his sheep and the welfare of his enterprise. The first three weeks should be given to seasoning the lambs to their new conditions and no gains should be expected.

The crux of the whole matter is that the heavy losses in the feed lots are due, not to communicable diseases, but to bad judgment in feeding and handling. For this reason the losses are usually heaviest during the first month, and a change of feed, unwholesome feed, or sudden increase in the amount of feed, will mean more pelts on the fence. To feed lambs without a heavy loss and secure satisfactory gains necessitates eternal vigilance, experience and common sense, and there is no other business that requires more.

DISCUSSION.

Dr. Bird suggested that in view of so much ignorance on the subject of sheep losses it would be desirable to publish a bulletin on the subject. He confirmed Dr. Glover's conclusions, that the losses were due to lack of knowledge on the part of the feeders, to mouldy hay, to beet tops and to change in grain. He said that sheep were of such a delicate constitution that it was not feasible to treat individual animals.

Dr. Lamb spoke of an outbreak at Eads some years ago in which three or four hundred head were lost with characteristic lesions of blackleg. Another loss followed shearing and was diagnosed as blood poison as the infection seemed always to start in the wounds made by the shears. Another loss apparently from the same cause followed the docking of a large number of lambs in South Park.

Dr. Glover questioned the diagnosis of blackleg, believing that this disease in sheep was practically unknown in this country. He spoke of a pecu-

liar condition existing at a large lake near Sugar City, where if sheep were driven to the lake from the north side they drank and then many of them would begin to bloat and soon die. If driven from any other side they remained healthy. He offered no conclusions as to the nature of the malady but stated that he expected to investigate it.

Dr. Carroll inquired as to the possibility of beet top ensilage being poisonous to horses. Dr. Patterson told of a case in which horses were receiving twenty pounds of such ensilage daily. They were taken with paralysis of the jaws, went down and could not rise. Several died in less than thirty-six hours. The postmortem revealed gastritis, slight congestion of the brain and hypereina of the kidney. The silage was warm but had no visible mold. Seven animals died but after a change of feed no more were lost.

Dr. Bird started a considerable discussion on Azoturia by suggesting that there was a close relation between beet tops and that disease. He said that in the fall in the beet districts Azoturia was exceedingly common in those animals that were running on tops and that the disease was usually fatal. He had seen Azoturia in England before it had been named; he had seen it in Australia; in India and finally in America and yet it still remained the enigma of Veterinary pathology. He hoped that some one would find out its cause and a satisfactory method of treatment. The crown contains one-tenth of the total amount of sugar in the beet and the question arose, "Did the sugar have any relation to the disease?" Every medicament known to man had been tried without results.

Dr. Savage thought the secret of success was education. Teach the horse owner how to feed and what to feed. It will lose you some cases of Azoturia, but you will stand better with your clients. Beet tops are not proper horse food. He had treated two cases with large doses of turpentine and they had recovered.

Dr. Cleveland called attention to the prevalence of Azoturia in Iowa where there were no beets. Believed in turpentine, two ounces at a dose or one ounce every three hours, until eight ounces had been given. He combined it with chloral and potassium bromide.

Dr. Carroll reported on the use of turpentine in four cases out of which he lost one.

Dr. Meinzer believed that quiet and good nursing were essential. Had tried turpentine with no results.

Dr. Culver believed that the best treatment was prevention by informing the clients of the proper method of feeding.

Dr. Fisk thought the temperament of the animal influenced treatment. He believed the animal with a broad forehead and even temperament offered more assistance to treatment and was more likely to recover. He gave details of cases from his practice to support this view.

Dr. Patterson believed in continuous application of hot water and blankets and found that in a few hours he was able to get most cases to their feet.

Dr. Dunleavy outlined his views based on years of experience in Denver. He said in part: Keep them up if possible, if they do go down prop them up on the sternum with bales of hay; always catheterize. Use turpentine in oil, never less than two ounces in a quart of oil. He gives the turpentine in capsules at times and believes it does not affect the stomach. He does not use cathartics, believing that the bowels will take care of themselves. He does not use slings. Thinks a horse should get up on the third or fourth day; but had one down sixteen days followed by recovery. Horse should be turned every two hours. He does not dread the disease as much as formerly. Believes in perspiration and plenty of water to drink. He detailed several cases in race horses, one of which died in spite of the large value of the horse and the services of several of the best veterinarians in the country. He uses some adrenalin, but has never given albumone a fair trial.

Dr. Culver suggested that dry blanketing was valuable where hot water was not handy.

DOUBLE METHOD VACCINATION AGAINST HOG CHOLERA.

(A. G. Wadleigh.)

By the double method I do not mean the simultaneous method, but a combination of the single and simultaneous methods. I use one half dose of serum first and ten days later I give full dose of both serum and virus.

As this paper has to do only with vaccination I will not say much about the pathology of the disease except to state that I think the pulmonary form of cholera is much harder to combat than the intestinal form in the infected herds as they usually die anyhow of pneumonia. At least, I have had better success in controlling the disease where the hogs had the intestinal form of cholera.

I also think the virulency of the organism varies a great deal in different outbreaks and this is how I account for such a marked difference in results when the same serum is used in different herds under practically the same conditions.

I am not very enthusiastic about the double method of vaccination as a prophylactic agent for I have gotten fully as good results from the serum alone or the single method.

Other features to be considered are that the single method means only about one half the expense to the owner and the danger of spreading the virus in non-infected territory.

I believe that in using either method it is important that we use every possible means of sanitation in order to at least weaken the virulency of the germs and help stamp out the disease. I think if this were practiced there would be a little more uniformity in results gotten from all methods of vaccination against hog cholera.

I also think that by using sanitary measures the serum alone gives all the protection that is practical in ordinary farm herds, as by the time the immunity has run out the disease will be completely stamped out. Usually a herd is made up of at least one half different individuals in the course of six to nine months, hence another reason for sanitation,—to protect young pigs and other new members of the herd.

Another objection to active immunization is that often pregnant sows are caused to abort, and sometimes the fetuses are carried the remainder of the gestation period and then several of the litter are born dead.

I submit the following figures which help emphasize some of the points I have tried to bring out:

Herd No. 1.—65 head in close quarters; 20 had died and 10 showed symptoms of intestinal form of cholera. The remaining 45 were vaccinated with single method and quarters were thoroughly disinfected. 6 of the sick ones died and no more developed the disease in 18 months.

Herd No. 2.—80 head in large quarters. About 40 head had died of pulmonary form of cholera and about 20 more showed symptoms of the disease. 40 were vaccinated with single method and all died but 6 or 8. Disinfection was not very thorough owing to large quarters.

Herd No. 3.—30 head, some of which were purebred. Herd was not infected but there was cholera on adjoining farm. All were vaccinated by double method. 8 died about two weeks after vaccination. There was an outbreak of anthrax on this farm and at least two of these hogs died of anthrax. Only one or two died after vaccinating against anthrax and thoroughly disinfecting the quarters. This was pulmonary form.

Herd No. 4.—80 head healthy hogs. Cholera existed in several herds on adjoining farms. All were vaccinated by single method and no cholera developed. Sheds, troughs, etc., were disinfected.

Herd No. 5.—25 head; one shoat showed symptoms of intestinal form of cholera. All but 8 suckling pigs were vaccinated by single method. 3 shoats and all of suckling pigs died. Mother of pigs showed no signs of cholera whatever. Disinfection was not very thorough.

Herd No. 6.—22 head healthy purebred hogs. Some cholera in neighborhood. 16 were vaccinated with double method and 6 with single. 9 died that were vaccinated with double method and 3 died with the single. They had the intestinal form of cholera and thorough disinfection with internal antiseptics seemed to be the only means of checking the disease in this herd.

Nearly all of the serum used was obtained from Kansas Agricultural College.

Note--In the absence of Dr. Guyselman, Dr. Meinzer of La Jara gave the following account of conditions in the San Luis Valley. A paper by Dr. Guyselman will be found in the proceedings of the Semi-Annual Meeting.

Dr. Meinzer:—A year ago we were just finishing one of the worst years in the history of the hog raising industry in the San Luis Valley. In Conejos County we had lost fifty per cent of our hogs which amounted to $80,000. Everybody was careless; the dead hogs were scattered over the valley and the water in the irrigating ditches became badly polluted. At this time when the farmers were disgusted and discouraged to the point of quitting business, Dr. Glover came into the valley and organized the farmers into associations. The association in the north end employed Dr. Guyselman and the one in the south employed me.

We were given the authority of deputy sheriffs and it was our plan to visit all ranches where cholera existed, quarantine the place, put up signs and allow no outsider to come on to the property. The dead hogs were burned, the litter raked up and burned and the pens disinfected. The manure was hauled onto the fields and plowed under. Kreso dip was used as a disinfectant. The hogs were injected with the serum alone method and the well kept with the sick until no further ones came down. The hogs were then moved to clean fields and the infected ones left for from four to six months after which they were considered safe. No one was allowed to drive sick or exposed hogs on the public road and none were marketed.

The results have been marvelous but they show what can be done by intelligent control. There have been no cases of cholera that originated in Conejos county for three months. There were in all, this winter, ten cases with a loss of three hundred and fifty hogs as against a loss of eight thousand last year. Half of this loss was from hogs that were shipped in and developed the disease soon after arrival. This is the time of year when cholera is usually at its worst but there are only two cases in the south end and four in the north. Not a drop of virus has been used in the valley in the past year. I believe the simultaneous method scatters the infection.

Dr. Dillon said that where there was natural infection there was no need for virus.

Dr. Culver said that the country had gone wild over agricultural demonstrators and that now no county was considered progressive that did not have an agriculturist. He said that it seemed to be the policy of these demonstrators to vaccinate hogs for all applicants and that the simultaneous method would be used. He thought that if this policy were persisted in, it would be unfortunate for the hog industry as it would certainly spread infection.

Dr. Glover said that after his experience he had very decided opinions on the use of the serum alone. He had succeeded by this method and by quarantine much better than he had hoped and would now recommend these measures rather than the simultaneous method. He spoke of the isolation of a spirochaete by King of Parke Davis & Co. and the work on preparing a preventive agent for the disease. He said that the use of virus and serum had allowed people to relax their vigilance on quarantine measures and likened the control of cholera to diphtheria and scarlet fever in man.

He thought that where the disease was rampant, as in Iowa, it might not be out of the way to use virus but that in our restricted areas we ought to take measures to eliminate the disease entirely rather than continue its spread. He said the important factors were a competent veterinarian, with authority to clean up and disinfect, absolute quarantine, shoot the dogs and the magpies and the neighbors if they come on the place, and then use serum alone.

Dr. Meinzer said that one half of the hog men in the valley dipped their hogs in vats of Kreso, one to seventy-five, and that they were quite enthusiastic over it. In no case where dipping was practiced regularly did they have cholera. Even if it was of no value as a preventive against cholera it kept down the lice. No hogs that had serum alone last year came down this year, even in infected herds—thus showing an active immunity. This was obtained by leaving the sick with the well.

Dr. Savage thought the free distribution of virus was to be discouraged.

Dr. Carroll said that many farmers were doing their own vaccinating and that in order to discourage this practice no veterinarian should purchase serum for farmers' use nor buy from firms that sold to farmers.

Dr. Culver called attention to the Nebraska law that provides that no one but licensed veterinarians could administer serum. He said, however, that the farmers were aroused and would probably get the law repealed.

Dr. Grimes, representing a serum plant in Kansas City, was called upon to explain the process used in production of serum. He first said that there seemed to be no good reason why virus should not be used when cholera already existed. In support of the contention that pen immunity was not dependable, he related an experiment conducted at Kansas City by Drs. Niles and McBride of the B. A. I. They placed two lots of pigs in infected pens, one had been injected with serum alone and the other untreated. The untreated hogs died and the treated ones ate some of them. The treated hogs were then sent to the country for seven months after which they were returned. In twenty-five days after return, three of them had died of cholera.

He spoke of the requirements of the B. A. I. governing licensed plants. The testing of serum must be conducted as follows: Eight pigs, between 40 and 90 pounds, should each receive 2cc of virus. Two should then receive 15cc, two 20cc and two 25cc of serum, the others remaining uninjected as controls.

If the 15cc hogs should sicken and the others, except the controls, remain immune, the dose is to be 30cc. If the 15cc hogs do not sicken and the controls die then 20cc can be used as the dose. He said that in their work they had never yet had their 15cc hogs sicken but that in order to have a greater margin of safety they still recommended 30cc as a dose.

Not less than 6cc of virus, per pound weight, should be used for hyperimmunization and the virus must come from hogs sickened on the premises and not from yards as was formerly done. He cautioned veterinarians against buying from serum plants that were not yet licensed.

THE LABORATORY AS AN AID TO DIAGNOSIS.

(I. E. Newsom.)

It is not my intention to show you, nor attempt to prove to you that the laboratory can be made an aid to the practitioner in making his diagnosis, for this basic principle is apparent to you all. Rather, it is my idea to point out to you the errors and pitfalls into which we at times fall in leaving too much to the imagination of the laboratory worker and expecting too much from the findings.

It is not uncommon in laboratory work to receive a small vial of blood, possibly taken from the animal after death, with a request to diagnose

the disease by return mail. And on the other hand there are those who seem to think that a small piece of spleen of liver and of kidney should be sufficient, for a man who has a microscope at his disposal to make a diagnosis of any ordinary case. Finally, there are practitioners who have such faith in the brilliant researches in bacteriology that they feel that the specific organism causing the disease in question can be isolated and recognized from most any of the body fluids.

All of these materials of course are of value to the worker and in specific instances an accurate diagnosis can be made from a very small amount of material submitted but in a considerable majority they are of no value at all. It would be well if in each case the practitioner could have in mind some particular disease and select the material for examination accordingly. Where a provisional diagnosis is impossible the selecting at random of a large array of material is seldom of much value either to the laboratory man or to the practitioner. If each case could be made a subject for original research where money and time were not taken into consideration then the more material available the better because cultures could be made from various parts of the body, each organism could be isolated and studied and finally recognized; all known serum and chemical tests could be applied, sections could be cut from each organ, stained and mounted and the actual pathological condition noted and finally after months or even years of work a very voluminous report could be submitted which might or might not reveal the true name of the disease.

The above method of diagnosis is becoming quite popular in the practice of human medicine where the patient or the friends are willing to pay for the work done. In a great many hospitals when the patient enters, in addition to a most thorough physical examination, a routine examination of the blood is made, including red, white and differential counts with hemoglobin percentage; a complete urinalysis and feces examination; also an analysis of the stomach content after a test meal; complement fixation test for syphilis and sputum examination, with recognition of various organisms. Finally, if the patient succumbs, cultures are made from various parts of the body, sections are mounted from all of the important organs, possibly chemical tests for various poisons and the final report is so complete that practically no pathological condition can escape notice.

Naturally, in order to obtain the best results, we must follow in the footsteps of the human physician in this matter but practically we must be content except in widespread outbreaks with the examination of one or two fluids or possibly a section or smear from one or two organs. Consequently these selections must be made with great care and with a knowledge of what disposition the laboratory can make of the material sent.

In order that this paper shall not be prolonged to too great an extent we shall take up a consideration of the various diseases and the selections to be made in each case.

Rabies appeals at once as a disease to be diagnosed by the laboratory man. Here, of course, everyone knows that the brain is the organ of most importance. In cold weather it is better to send the whole head of the animal and in this state heads usually arrive in good condition when sent in the fresh state without any special preparation. Probably a wrapping of cotton is desirable. In warm weather, however, the case is different. If not specially prepared they usually arrive in such a putrid state that the staining of smears is almost impossible. They should be sent packed in sufficient ice to keep them cool throughout the journey or the brain removed and immersed in glycerine. The latter method is dangerous to the practitioner and often undesirable to the laboratory man. If the Negri bodies are to be found the case can usually be diagnosed within twenty minutes after the brain arrives at the laboratory. If the case is negative, however, the real work begins. A sufficient number of smears from various parts of the brain must be examined to be sure that no bodies have escaped notice. If the symptoms were positive and a person has been bitten, sections should be made and rabbits inoculated. Finally, in the absence of all lesions

of rabies, but with positive symptoms, it is safer to advise vaccination, because even the most thorough workers have not arrived at the point where they care to say that the absence of positive microscopic signs in the presence of a positive history means in every case no rabies. In other words, the positive cases are always positive, but the negative cases are not invariably negative.

There is some reason to suspect that Negri bodies, as we know them in the dog and rabbit, do not readily appear in the brains of other animals as for example horse, ox and man. A number of cases of human rabies are on record where microscopic examination of the brain was negative but inoculated rabbits came down in the usual time after which their brains showed typical bodies. Literature on the microscopic examination of the brains of horses and cattle is very meager but a number of cases are on record where the symptoms in these animals seemed to point to rabies with negative microscopic findings. I have in mind a case in which a dog was known to have bitten several animals in a pasture and in the course of time two calves came down with what simulated rabies. Later a horse developed typical symptoms and died on the third day. Examination of smears made from various parts of the brain proved negative. Of two rabbits inoculated, one of them came down on the twenty-second day, and the other, on the twenty-fourth. In neither case were Negri bodies demonstrable.

Anthrax can in most cases be diagnosed by the autopsy but if verification is desired an ear is about as serviceable to the laboratory as anything else. It does not putrify easily and smears and cultures as well as inoculations can be made from it. Smears of blood on glass slides, if taken before or soon after death, should reveal the typical organism. Smears made some hours after death are not at all reliable. Bottles of blood unless taken with extra precautions and from the live animal are not very valuable.

Glanders can be diagnosed in the laboratory by either the agglutination or the complement fixation tests, from a small vial of blood taken with the ordinary precautions but not necessarily sterile. While the complement fixation test is the most accurate, many laboratories do not have a sufficient number of cases to pay to be prepared to conduct it.

Contagious abortion in cattle can be diagnosed by either of the above methods but only a few laboratories have arrangements for making the tests. No other test is considered accurate. Kentucky and Wisconsin stations have worked a great deal with the fixation test and find it very reliable, the great value being that animals can be found before they abort.

Tests of stomach contents for various chemical poisons can be readily made by most laboratories, the most common tests being for arsenic. A complete examination of a stomach content where no special poison is suspected is, however, a very large task and is only attempted in the most important cases and then, of course, by chemists. Most alkaloids, ptomaines and mold poisons are very elusive and some are not discoverable by any known technique. Food poisoning is not to be diagnosed in the laboratory.

The bacillus necrophorous can sometimes be isolated from fresh lesions and pus by inoculations into rabbits and smears can sometimes be relied upon if taken from under the false membrane and in the presence of typical history.

Actimonycosis is probably the easiest of all diseases that are diagnosed in the laboratory. Either the pus or the thickened tissue will show the ray fungus in large numbers and, of course, the pus requires no preparation. A little of the thick, creamy material enclosed in a bottle is sufficient. Material for sectioning, but not pus, should be sent in 10% formaldehyde solution. I recently had to deal with a case of thickened skin over the cheek and lips of a cow that had persisted for several months and had been variously diagnosed by others and by myself from the clinical manifestations. No pus had formed but a section of the thickened skin showed actinormyces bovis.

Most of the tumors of our lower animals are readily diagnosed but

we have not found many of our practitioners who cared whether the new growth they removed was a sarcoma or a carcinoma, or even whether it was malign or benign. And, of course, ordinarily it does not much matter to the veterinarian. It would, however, be helpful in special cases in the matter of prognosis.

The analysis of urine is not so essential in our lower animals as in man, for the reason that kidney diseases are rare but in obscure cases a complete urinalysis will be very helpful.

Blood counts are of value in differential diagnosis but the whole matter needs much further investigation.

The day will come in veterinary practice when animals will be of sufficient value that more careful work will be required of the veterinarian and then the laboratory will become a necessary adjunct as it has in human practice.

There are a number of difficulties in the way of careful work in this particular line at present. First, the fact that the average practitioner does not usually get beyond a burning desire to know what the trouble is. I mean by that that he does not reach the point where he wants to eliminate one possible diagnosis or another. Second, there are few laboratories where the work wanted can be obtained. That is, most laboratories working with diseases of animals are public laboratories and the workers do work for practitioners more as a matter of courtesy than as a business proposition. Furthermore these men are usually very busy with routine work and cannot give the time to each case that it may deserve. Third, the owner is seldom willing to pay for such service as will really give a sound clew to the difficulty.

The first difficulty can be overcome by more education and more experience. The second partially by the establishment of commercial laboratories that make examinations for regular fees and partly, as has already been done in some states, the establishment of hygienic laboratories by the state with a sufficient appropriation to make possible a thorough study of every outbreak of disease. The third objection can be overcome by the increase in the value of live stock, by the increased efficiency on the part of the practitioner and by the establishment of the state laboratories mentioned above.

DISCUSSION.

Dr. Davis told of the diagnosis of Dourine in the recent outbreak in Montana and Wyoming. There had been in all eight thousand tests made with fifteen hundred reactors. The test used was the complement fixation. Four ounces of blood were drawn from the jugular, from which at least four drams of serum should be obtained. Five per cent carbolic is added as a preservative and the material sent in.

He then told of a case in a man which seemed very suspicious of glanders. The man thought at first he had typhoid but later developed abscesses in the right leg. These wounds made to evacuate the pus did not heal. The man had been ill for about a year.

Dr. Bird said that Dourine had been prevalent in Montana for many years.

Dr. Lamb told of a case in a mule that he visited when State Veterinarian, in which the diagnosis of glanders was easily made from the clinical symptoms. After hearing the diagnosis the mother exclaimed, "That is what my poor boy died of." The boy had died of an unknown disease some time previous, but after hearing the symptoms and knowing the close association between the boy and the mule, the doctor thought the condition was glanders. He told of another instance where a livery man, who had a number of glandered horses, had himself died of that disease.

MEMBERS PRESENT

R. H. Bird
A. G. Brocker
A. N. Carroll
C. W. Converse
F. W. Culver
G. W. Dickey
L. R. Dillon
A. P. Drew
M. J. Dunleavy
A. G. Fisk
Geo. H. Glover
F. D. Hylton
Chas. G. Lamb
J. F. Meinzer
L. G. McClain
A. N. McGregor
I. E. Newsom
D. C. Patterson
Irving A. Phinney
A. J. Savage
Otto W. Seher
Geo. L. Richards
M. J. Warner

UNIVERSITY OF ILLINOIS
FEB 18 1921

SEMI-ANNUAL MEETING

Fort Collins, May 28-29

BUSINESS MEETING

The meeting was called to order in the Pathology building of the Colorado Agricultural College at 10 a. m., with President Fisk in the chair. The minutes of the previous Annual Meeting were read and approved.

The executive board reported favorably on the applications of W. W. Yard and Charles C. Stewart and that the application of C. M. Williams be laid over until the next meeting. The report was adopted.

Dr. Dickey, a member of the legislative committee, reported that the committee had not as yet held a meeting. He gave it as his view that the state might well be divided into districts with a deputy state veterinarian in charge of each, the practitioners in each district to report any outbreak of diseases to the deputy in charge. These men to be paid by the state on a per diem basis for such service as was actually rendered. He felt that each board of health should have as one of its members a veterinarian, whose duty it would be to supervise the milk and meat inspection and the handling of contagious diseases in animals.

On motion, Drs. W. W. Yard and M. J. Warner, were added to the legislative committee.

Dr. Yard stated that a number of dairymen had drafted a bill modeled after the Wisconsin statute, providing for the compulsory tuberculin testing of dairy cattle, the work to be done by the owners under certain restrictions. There had been much agitation of the matter in various granges and other farmers' organizations, but upon mature consideration, those who were most in its favor had come to see the folly of allowing each man, no matter how honest, to test his own herd and that they were now ready for a state law providing for the work to be done by trained men. He felt that the next legislature could be prevailed upon to pass a tuberculin test law that would have both the support of the dairymen and the veterinarians.

Communications were read from Drs. Lamb, Griffith and Warner, regretting their absence and from the editor of the Twentieth Century Farmer, replying to our resolution relating to advertising, passed at the Denver meeting.

A resolutions committee, consisting of Drs. Dickey, Dillon and Paxton, was appointed.

In the afternoon, following Dr. Yard's paper, the discussion brought from Dr. Glover a motion to amend the scale of prices relating to tuberculin and mallein testing to read as follows: For the first animal, $5.00; for each additional one, up to twenty-five, $1.00; for all above twenty-five, fifty cents each. This motion was duly seconded and passed.

A vote of thanks was tendered thc college men for their hospitality and to the practitioners who furnished the clinic.

PRESIDENT'S ADDRESS

(A. G. Fisk.)

Gentlemen:

I address you today with feelings of mingled regret and pleasure. Regret that I do not feel that I deserve the honor you conferred upon me because I have done nothing to deserve it; pleasure and pride, that you did, in spite of the abundance of more worthy and deserving material, give me this honor.

Ever since I became a member of this organization I hoped to some day deserve and receive this expression of your esteem and confidence; but I expected to wait a good many years for the realization of that ambition and would have been only too willing to have done so. If, however, I succeed in half living up to the recommendations of my friend, Dr. Bird, I shall feel that I have done well. All any one can do is to try and that I will.

Let us for the sake of variety consider the present and future. In doing so, however, it will be well not to lose sight of our past as an association, because, it seems to me, we can use the mistakes, if any are found, as stepping stones; and the successes as handholds for our rise as an association and profession in Colorado.

I believe we are entered upon a year of great things for this profession, among them the contemplated reorganization of the A. V. M. A., and the raising of the standing of the profession in the army by the passage of that bill which has been under discussion so long. And yet it seems to me that while we are planning and working for the profession at large, we should be doing something for ourselves as well. In this connection, and relative to our present and future, it seems to me we have been overlooking a big bet in our favor. I refer to our relations with the other associations in the state springing from the stock industry, sanitary measures and agriculture.

If we could convince the other associations that ours is intended for their protection as well as our own and that the Colorado Veterinary Medical Association stands for not only the best veterinarians, technically but morally, and that we are ready to stand back of our members at all times, the result would be two-fold. We would have a great many more friends to help us on needed legislation and we would have much less need for laws. Why can not we each and every one constitute ourselves a committee of one to convey this idea to our cousin associations and instead of asking them or their members for aid in gaining some point for ourselves, offer our aid to them. There are a great many friends lost to us simply because they do not know that we exist. If this idea carried out did nothing more, it would tend to make our organization better known. While this idea may sound a bit idealistic, I don't thing it impractical. Human nature is the same the world over and one thing that is sure under all conditions is that a man or body of men feel more like helping those that help them than those that are asking for the help. Boost the other fellow's game and he will boost yours.

But I did not intend to advance my own theories and will promise not to commit the offence again this time if you will forgive this one. I am anxious to see our association the model one and all deserving veterinarians in the state members and boosters; but I fear I may become tiresome, always drilling away on this topic.

Yet I am sure you all agree with me that an association with a high standard for qualification to membership is the greatest aid to the advancement of any profession.

I am satisfied that with a little work in the right direction we could

get on such good terms with those other associations and societies in the state that they would be willing to agree not to recognize or patronize any veterinarian but an association member. If this plan succeeded we would have things our own way as sure as though every law was enacted that we could possibly ask for.

Labor conditions existing in the state at present are such that all forms of industry, and in fact everything in the state is suffering, but the tide will turn and then everything will start up and keep going up beyond any previous high water mark. Let's begin now getting ready to grab each opportunity as it comes so that we may make the best of every one.

Our meetings are better and better, each succeeding one, with interest in them increasing all the time, but they are not good enough yet and never will be, until they equal the meetings of the medical profession in technical value and their result to the members in practical benefit, as laws enacted and general working conditions improved are up to the highest standard.

If I could frame my thoughts into pleasing phrases, as some of our members can, I could go on indefinitely telling you what I want for our association and profession but I am neither a good talker nor writer, therefore I will give the floor to others with more interesting matter for your consideration.

Before I give the floor to the specialists on hog cholera, surgery, medicine and the branches to be discussed today let me say that the officers of your association need the support of all the members, and that we appreciate it and that the officer that needs it most, because he does the most, is our secretary.

We all appreciate the confidence reposed in us when you elected us to office and feel that the bestowal of such honor calls for increased effort on our parts, but we do not feel that we can get the best results unless you tell us what you want and how you want it.

While I do not feel that I deserve the honor and distinction conferred upon me last January, I do appreciate it and thank you.

PAPERS

THE SIMULTANEOUS VACCINATION FOR HOG CHOLERA.

(A. A. Hermann.)

Gentlemen:

I have the honor and pleasure of presenting a few remarks on a professional procedure which already appears to be falling into disrepute and will ultimately bring grief to a few performers through some slip in technique, inconsistency, serum lacking in potency or errors in vaccinating already infected animals.

In spite of these phases the simultaneous vaccination commends itself because it is effective in a definite way for a definite time; it is perfectly safe in experienced hands and it is economical as compared to the indefinite temporary immunity conferred by serum only—in fact, it is the cheapest and best life insurance policy against cholera, if done at about the weaning time, that can be purchased.

It solves the cholera problem, the expense and losses of which are millions of dollars annually, for by the enforced vaccination regularly, of all weanling size hogs in this commonwealth, an immune barrier is built up around the disease and it must cease to exist for want of a subject susceptible to it. In comparison, the present method of waiting for the disease to strike the first blow and then injecting the serum only, is expensive, uncertain, temporary and wasteful, in the use of large doses of serum, when

relatively small doses, earlier in life, would have been more effective. Aside from the losses accruing through repeated outbreaks, each subsequent attack on the herd finds a large percentage of the animals again subject to the exposure through the elimination of the protective poisons. Also, since no one can predict with any degree of certainty, which are and which are not immune, it becomes necessary to re-vaccinate all, repeatedly.

By comparison, the definite simultaneous vaccination, once administered, confers positive immunity for life.

By consistency, the risks due to vaccinating are reduced to the minimum. It is important that every animal on the premises be given the immunity, so that no susceptible carriers be left to infect the premises. The virus syringe should be handled with the utmost care to avoid any contamination of premises, stock or attendants.

The temperature of every animal to be vaccinated should be carefully taken and no animal having an abnormal temperature should be treated with virus.

The careful use of the simultaneous treatment should be and has proven to be perfectly safe, sure and reliable in the hands of any veterinarian, as it has been in my hands.

The serum I use is that manufactured by the Northwestern Hog Cholera Serum Manufacturing Co., of South St. Paul. Any firm whose plant has been inspected and licensed by the government would prove equally reliable.

HOG CHOLERA IN THE SAN LUIS VALLEY.

(P. C. Guyselman.)

Hog cholera is an acute febrile disease which, so far as is known, affects only hogs and which is characterized by extreme contagiousness and very high death rate.

Since the advent of hog cholera in the United States in 1883 it has spread until it is now found in all parts of the country and for several years has been especially prevalent throughout the corn belt districts where it causes an annual death rate amounting to a loss of over $50,000,000.

The country is just awakening to the fact that this malady can and must be controlled. The last United States Congress appropriated $500,000 to be used in combating this disease. James Hill, the great railroad magnate, has signified his intention of contributing a large sum of money toward controlling hog cholera in the Northwest.

During the time from 1910 to 1913, hog cholera spread to such an extent in the San Luis Valley that the production of hogs was a task to be feared and the banks would under no circumstances loan money on hogs unless the borrower could furnish other means of security.

The origin of the first outbreak was when one of the stock feeders shipped in a load of hogs from a neighboring state. No attention was paid to the quarantining of these hogs or disposition of the dead carcasses and no precautions were used in subsequently infected herds. Hogs were left to lie in sloughs, ditches, roads and fields; where they died they were allowed to remain. This was not so bad regarding the hogs but unfortunately the germs would not stay "put" and scattered far and wide until practically every hog feeder had become a hog loser.

When the disease appeared in a herd, all the hogs that could be moved were hauled or more frequently driven to the stock yards and shipped. If one died on the way it was dragged to one side and allowed to rot by the road side, except in unusual cases, when the owner would be forced to bury it. All the time the people maintained that hog cholera could not occur in the San Luis Valley. It was swine plague or infectious pneumonia, in fact anything but hog cholera.

During the early part of February, 1913, following a thorough conversion of the citizens by Dr. Geo. H. Glover, the towns and the adjacent territories were organized into associations, the purpose of which was to combat and, if possible, eradicate hog cholera.

The most important part in the establishment of these organizations was the cooperation of business men and farmers, all working toward the same end.

The two largest associations, one at Monte Vista and one at La Jara, employed Dr. J. F. Meinzer and myself as veterinarians and the regular work began on February 10th, 1913.

We used just plain, common sense methods. Quarantine, vaccination and disinfection, plus cooperation, were the cause of what success we have had. We have used the serum-alone method. First, because it is absolutely safe; second, because in an infected or exposed herd the virus is not essential; third, because we do not consider the use of virus practical where the desire is to eradicate cholera.

Dr. Meinzer and I are both state sanitary inspectors and deputy sheriffs and so far have had no trouble in maintaining quarantine rules or in forcing sanitary laws and regulation.

After vaccinating the hogs all those that do not look perfectly healthy are kept in a small pen apart from the others, which is disinfected frequently until the hogs either recover or die. The rest of the herd is dipped every few days and as soon as the disease has run its course, the pens, sheds, and lots are cleaned and disinfected. Kreso dip, white wash, formalin and air-slaked lime are what we advise for this work. Dead hogs are immediately burned or buried.

We keep a large quantity of serum on hand at all times and the infected herds are treated without delay. Treatment of hogs takes preference over any other work. There are two favorable places for administration of serum, the ham and back of the shoulder. Ham vaccination has been subjected to a great deal of censure on account of the possible formation of abscesses which of course are harmful. If proper asepsis is carried out the injection correctly given and a long needle used we have little to fear from abscesses. The one great fault of shoulder vaccination is that in many cases the serum works out of the loose connective tissue. I had a heavy loss in two herds before I realized this.

Since February 10th, 1913, I have vaccinated 3658 hogs. Many of these were undoubtedly infected at the time of vaccination and of that number 430 have died. A loss of 11.7 per cent. We do not vaccinate hogs that show symptoms of sickness but many are probably infected and have high temperatures. However, we do not consider it practical to catch every hog twice, once to take temperatures and once to vaccinate and as the serum has some curative values a large per cent of the hogs in the first stages will recover.

The symptoms are of a chronic type usually, although in some instances the first knowledge of trouble the owner has is when he finds one or two dead hogs. At first the sick hog will begin to neglect its feed and develop a tendency to return to its bed soon after being stirred out. At this stage there is always a high fever. The head and tail will be drooping and the flanks soon present a tucked-up appearance. The hog loses flesh rapidly, becomes weak and has a sickly grunt or squeal. It soon develops an unsteady gait, especially noticebale in the hind parts and when lying will have difficulty in rising, doing so only when urged. It usually drinks and eats a little up to within twenty to forty-eight hours of its death. Toward the latter part of the disease the respirations become accelerated and are frequently accompanied by a cough. There is a discharge from the eyes which later become muco-purulent. The bowels are nearly always in a state of constipation at first and later diarrheic. As a rule affected animals die in from four to fourteen days but may live four or six weeks and occasionally recover.

In a herd of fifty there are frequently one or two hogs that seem to

have a natural immunity and do not contract the disease. In others there has been a 100 per cent loss. This information was taken from cases occuring before the beginning of our work. I think it is safe to say that without the use of serum there would be at least a 75 per cent loss in all affected herds.

The post-mortem lesions are characterized by hemorrhagic spots, sometimes petechiated and at other times ecchymotic. These spots make their appearance in the lymph-glands, lungs and pleura, heart and pericardium, intestines, kidneys, subcutaneous tissue and liver. The latter is usually enlarged and often undergoing a parenchymatous degeneration. In a very few cases I have found ulcers on the intestinal mucosa.

General Preventative Rules.

Farmers should be instructed to locate hog pens and lots away from public highways and ditches. The hogs must have a pure water supply. In the San Luis Valley the irrigation would be a greater carrier of infection were it not for the fact that we have the artesian wells. Newly purchased hogs should be quarantined for two or three weeks. The pens and sleeping quarters should be subjected to a regular and efficient cleaning. The hogs should be dipped frequently and provided with proper shelter. The state laws regulating hogs affected with cholera, and shipment of hogs, should be rigidly enforced. Farmers' organizations should be established for the purpose of controlling hog cholera and other contagious diseases of domestic animals.

In conclusion I wish to repeat that common sense methods and cooperation of the citizens will go a long ways in ridding any community of hog cholera.

SOME COLORADO SANITARY PROBLEMS.

(W. W. Yard.)

Mr. President and Members of this Association:

I wish to thank you for the courtesy you have shown me. I came here to get your ccoperation and support in certain sanitary matters which not only interest the state and the public but interest you all, individually and financially.

You perhaps do not know that everything that is decided in my office along sanitary lines has to be decided by myself, not having a veterinarian to consult with as other states have.

I also, while on this question, want to thank the graduate veterinarians for their loyal support and untiring cooperation which they have given to my office, and it is with the greatest satisfaction that I am at last in a position of being one of them in their association and that I can consult with them and follow their advice.

I want to report first, that on account of the attitude that I have been taking in regard to tubercular reactors and the use of the virulent blood in the treatment of cholera, having a regulation passed putting the control of the latter in my hands, I am accused by some of building up a veterinarians' trust, and as I reported to the persons making this assertion, that if I were I was occupied in a good cause and that no matter whether I was state veterinarian or not I would with the cooperation of the graduate veterinarians, continue the fight against tuberculosis and the virulent blood.

I now, gentlemen, ask for your support; also I want to tell you that I am here today to serve you as well as the great state of Colorado and whatever you think is best for all concerned, I expect to follow.

There has been quite a sentiment over the state to pass a tuberculin

test law and since the Wolhurst matter and several others have occurred, the dairymen have met and talked over the matter of having a bill passed to allow the owners of cattle to go before the state veterinarian and take an examination and receive authority to test their own herds (law of Wisconsin). This was opposed by myself, by sending for the data on Wisconsin, which shows that such a law has been a failure. The next thing was to discredit the tuberculin test as not being reliable, their quoting from such men as Moore, etc., but in order to kill this I have letters from all of the best authorities, as well as Dr. Moore, who says that the reliability of the tuberculin test is almost 98% perfect.

This is one of the biggest things, gentlemen, that any state veterinarian or an association ever took up to regulate and it is with this matter and others that interest you that I am here today.

You know that the state of New York has a third of its dairy cattle tubercular, you know what a dose we got from Illinois and how I had to go to the U. S. Sanitary meeting in order to get some action on that state and we have quarantined against their breeding and dairy type of cattle.

I was appointed upon a committee to visit the dairymen and talk with them and see just how they felt and what idea they had. This we did yesterday, so that I would have something to tell you today, and I want to report that I believe that the reputable dairyman today is ready for a law. They told us that in all the years that they have been in business that now was the first time that they thought a tuberculin testing law necessary and that it would go through if made so that everyone was treated alike.

The objections to the tuberculin testing, was not so much the fact of testing as it was the charges of the veterinarians, one charging one price and the other another; that they never knew just what it would cost to test their herds.

I am going to ask this association to pass some schedule of prices for the testing of horses for glanders and cattle for tuberculosis, also to ask if, when this is done, every veterinarian will comply with it and that I may be allowed to have it made a regulation by the state until we can get some law on the statute books.

Another complaint which I offer you is the system by which some are examining stallions. According to law this is made to me and you know I do not care, but I feel it my business when I do know these things to report them for your consideration. They complain that some of the examinations are not thorough and some examine at the railroad station while the train is waiting to transfer passengers.

Finally, gentlemen, I wish to assure you again that I am here to serve you and hope that you will instruct me whenever I can cooperate with you, one and all. What has been done in my office has been done on five hundred dollars a year and mileage. I thank you all.

THE BANQUET AND BALL

At 6:30 p. m. on the first day of the meeting the members and their ladies sat down to the annual banquet of the Veterinary Medical Association of the Colorado Agricultural College. The toast program was as follows:

Toastmaster, I. E. Newsom

The Association.....A. G. Fisk
The Veterinarian's Wife.....Mrs. H. E. Kingman
The Veterinary Student.....John Bryant
The College.....Chas. A. Lory

After the toasts the orchestra furnished music for dancing until the evening waned and the new day began.

CLINIC

(In charge of and reported by H. E. Kingman)

CASE 1
Rachitis.

History—Dogs fed on wheat, owner stated that the corn crop failed so he had to resort to wheat. Dr. Whitehouse suggested that the pups be placed on an alfalfa diet until the green grass should come, believing that the hay ration would be as appropriate as the cereals.

Symptoms—Carpal and tarsal joints greatly enlarged and crooked, knots at the costo-chondral unions, face twisted, locomotion difficult, animal lies most of the time.

Treatment—Animal placed on a meat diet and allowed to exercise at will. At the end of two months the animal showed considerable improvement.

CASE 2
Equine—Black—10Year Gelding.

Diagnosis—Immobilite. Dr. McCapes of Boulder in charge.

History—A year ago the animal lost control of the hind legs.

Symptoms—Incoordination, atrophy of hips, interfering, irregular gait, most noticeable upon backing.

Prognosis—Unfavorable.

Treatment—Fowler's Solution three drams a day, increasing the dose to one and one-half ounces a day and then beginning the treatment over, starting with the small doses.

CASE 3
Equine—Two Years—Gelding.

Diagnosis—Sternal fistula. Dr. Charles Converse, operator.

History—Colt was hurt during breaking.

Symptoms—Swelling over the region of the sternum, small wound discharging a little pus.

Treatment—Freely incised, wound explored for pieces of bone, none found, dressed with tincture of iodine and instructions given the owner to continue the iodine treatment.

CASE 4
Equine—Black—Two Years—Male

Diagnosis—Ridgeling. Dr. McCapes of Boulder, operator.

Upon examination testicle was found in inguinal canal.

Technique—An incision was made over the inguinal canal about three inches lateral to the scrotum, the testicle was delivered through the incision and emasculated. The left testicle was taken in the usual manner.

CASE 5
Equine—Brown—Twelve Years—Mare.

Diagnosis—Contraced tendons. Dr. McCarrol of Fort Collins, operator.

History—Of two years' duration.

Symptoms—Perforans and perforatus contracted until the front of the foot touched the ground.

Operation—Tenotomy. Adhesions were broken until the foot assumed a normal position. Two months after the operation the foot was still in comparatively normal position.

CASE 6
Equine—Black—One Month—Female.

Diagnosis—Metastatic arthritis. Dr. Watts, of Longmont, in charge.

History—Joints had been affected for three weeks.

Symptoms—Stifle joint capsule greatly distended, colt emaciated, unable to rise without assistance.

Treatment—Polyvalent bacterin and nuclein.

Prognosis—Very unfavorable.

This colt made a complete recovery.

CASE 7
Bovine—Black and White—Nine Years—Female

Diagnosis—Panaritium. Dr. Gilgen, of Eaton, in charge.

History—Of two months' standing.

Previous treatment—Tubbing in hot bichloride solution, frequent application of koalin cataplasmata.

Symptoms—Phlegmon about the coronet, open wound on the outside discharging pus, also a wound between the claws discharging pus, animal lies most of the time.

Treatment—Tracts were dressed with tincture of iodine, an autogenous bacterin was made and administered, case shows constant improvement. A report of cases similar to this that responded to bacterins where other lines of treatment had apparently failed.

CASE 8
Equine—Grey—Mare.

Diagnosis—Prescapular abscess.
Operator—Dr. Chas. Converse, of Castle Rock, Colo.
Symptoms—Swelling slightly above and anterior to the point of the shoulder.
Treatment—Freely incised, permitting the escape of pus, dressed with tincture of iodine.

CASE 9
Equine—Black—Seven Years—Female.

Diagnosis—Quittor.
Operator—Dr. Paxton, of Ouray.
History—Of one year's standing.
Symptoms—Fistulous tract over outside right quarter, discharging a little pus, considerable organization, causing enlargement about the quarter and coronet.
Technique—Tract opened and curetted, wound dressed with saturated solution of bichloride.

CASE 10
Bovine—Black and White—Nine Years—Male.

Diagnosis—Actinomycosis.
Operator—Dr. Ayres, of Sterling.
History—Of several months' standing.
Symptoms—Abscess about the size of a man's head in the intermaxillary space.
Treatment—Freely incised, permitting the escape of a large quantity of thick, cream colored, glassy pus; cavity dressed with tincture of iodine.

CASE 11
Canine—White—Six Months—Female.

Operation—Ovariotomy.
Operator—Dr. A. G. Fisk, Trinidad.
Technique—Field shaved and painted with tincture of iodine; bitch was given 1 tab. H. M. C. Form B.; incision made on the median line about 1½ in., wound held open by means of a speculum; horns of uterus grasped with Noyes alligator ear forceps; ovary ablated with scissors; wound closed by a continuous peritoneal and subcutaneous suture.

CASE 12
Canine—Brown—One Year—Male.

Diagnosis—Luxation of the femur.
Operator—Dr. A. N. Carrol, Pueblo.
History—Hit by a motorcycle.
Symptoms—Inability to support weight, increased mobility inward, lim-

ited abduction, entire limb rotated inward, pain upon pressure over the articulation and some swelling.

Autopsy—No attempt was made to reduce to luxation, the animal was killed and a dissection made of the parts. The articular head of the femur was found in front of the acetabulum, the ligamentum teres being ruptured. Dr. Carrol demonstrated an easy method of reducing such dislocations.

CASE 13

Equine—Brown—One Year—Female.

Diagnosis—Phlegmon.

Operator—Dr Kingman, Fort Collins.

History—Colt injured six months previous by rolling into a gate. It is suspected that the periosteum was involved.

Symptoms—Suppurating induration over the lower third of the left cannon, ulcers the size of a dollar on inside and outside.

Treatment—Ulcers curetted, removing large quantity of connective tissue, bacterin prepared from the pus, the wound and leg dressed with tincture of iodine.

CASE 14

Equine—White—Ten Years—Female.

History—Seems to be deaf, goes to sleep standing.

Symptoms—Not well marked. Tem. 100.4° F. Pulse and Resp. normal.

Diagnosis—None made.

CASE 15

Bovine—Jersey—Male.

Diagnosis—Tuberculosis.

Dr. Kingman, Fort Collins, in charge.

History—Bull had been given the subcutaneous test by a layman about a year previous to this test. Six months after the first test the bull reacted to the intradermal. At the time of the clinic showed reaction to both the subcutaneous thermal test and the intradermal.

MEMBERS PRESENT

V. J. Ayres
C. L. Barnes
C. W. Converse
A. N. Carroll
G. W. Dickey
L. R. Dillon
A. G. Fisk
Geo. H. Glover
Fred Gilgen
A. A. Herman
F. D. Hylton
H. E. Kingman
N. J. Miller
A. B. McCapes
R. N. McCarroll
A. N. McGregor
I. E. Newsom
D. C. Patterson
John D. Paxton
T. F. Quinn
Geo. L. Richards
O. W. Seher
Chas. C. Stewart
Ira Watts
A. W. Whitehouse
W. W. Yard

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PROCEEDINGS

FOR THE YEAR

1915

Colorado Veterinary Medical Association

Edited by the Secretary

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FEB 18 1921

Annual Meeting at Denver
Tuesday, January 19

Semi-Annual Meeting at Fort Collins
Friday and Saturday, May 28-29

OFFICERS FOR 1915

A. P. Drew, Grand Junction ---------- President
F. D. Hylton, Longmont ---------- First Vice President
L. R. Dillon, Pueblo ---------- Second Vice President
I. E. Newsom, Fort Collins ---------- Secretary-Treasurer

EXECUTIVE BOARD

V. J. Ayres ---------- Sterling
Fred Gilgen ---------- Eaton
C. W. Converse ---------- Franktown

MEMBERS

V. J. Ayres ---------- Sterling
C. L. Barnes ---------- Fort Collins
A. G. Brocker ---------- Steamboat Springs
R. H. Bird ---------- Greeley
T. H. Brady ---------- Lamar
John B. Bryant ---------- Trinidad
W. S. Craig ---------- Paonia
Chas. W. Converse ---------- Franktown
F. W. Culver ---------- Longmont
A. N. Carroll ---------- Pueblo
G. W. Dickey ---------- Colorado Springs
M. J. Dunleavy ---------- Denver
L. R. Dillon ---------- Pueblo
A. P. Drew ---------- Grand Junction
A. G. Fisk ---------- Trinidad
E. J. Foreman ---------- Trinidad
Geo. H. Glover ---------- Fort Collins
Fred Gilgen ---------- Eaton
A. H. Griffiths ---------- Montrose
F. D. Hylton ---------- Longmont
A. A. Herman ---------- Littleton
W. H. Johnson ---------- Denver
H. E. Kingman ---------- Fort Collins
Percy Lamb ---------- Denver
Chas. G. Lamb ---------- Denver
A. N. McGregor ---------- Fort Lupton
R. N. McCarroll ---------- Fort Collins
J. F. Meinzer ---------- La Jara
A. B. McCapes ---------- Boulder
N. J. Miller ---------- Windsor
L. G. McClain ---------- Manzanola
I. E. Newsom ---------- Fort Collins
G. H. Oliver ---------- Denver
John D. Paxton ---------- Las Animas
D. C. Patterson ---------- Sterling
Irving A. Phinney ---------- Loveland
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A. W. Whitehouse ---------- Fort Collins
M. J. Woodliffe ---------- Denver
A. G. Wadleigh ---------- La Junta
Ira Watts ---------- Longmont
M. J. Warner ---------- Johnstown
W. W. Yard ---------- Denver

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ANNUAL MEETING

Denver, January 19, 1915

Rooms of The Gentlemen's Riding and Driving Club

BUSINESS MEETING

The meeting was called to order at 10 a. m. with President Fisk in the chair.

The treasurer's report was read as follows:

Balance on hand May 27, 1914	$151.17
Receipts from all sources	48.00
DISBURSEMENTS	
May 28, 1914—Cigars	3.50
May 29, " —Lunch at Semi-Annual Meeting	26.50
June 26, " —Stamps	1.00
Aug. 20, " —Printing Proceedings	49.00
Aug. 20, " —Stamped Wrappers	1.08
Aug. 22, " —Stamped Wrappers	.27
Jan. 4, 1915—Stamps	1.00
Jan. 2, " —Phone	.90
Jan. 7, " —Printing Programs	4.75
Dec. 31, 1914—Secretary's Salary	20.00
Jan. 14, 1915—Stamps	1.00
Total	$109.00
Balance on hand January 15, 1915	$ 90.17

Dr. Newsom reported as delegate on the Farmers' Congress. This brought out considerable discussion on the various resolutions presented. Dr. Dickey thought there should be at least two veterinarians on the Stock Inspection Board.

Dr. Ayres thought there should be State compensation for horses destroyed because of glanders. Dr. Wright, a visitor from Vermont, explained the New York system of compensation for tuberculosis.

Communications were read from W. T. Pugh relative to a memorial to Dr. D. E. Salmon and from Fred P. Johnson relative to the dues of the association to the Colorado Stockgrowers Association. By vote of the association the secretary was authorized to pay the dues to the Stockgrowers Association.

The applications of J. B. Bryant, W. H. Johnson and G. H. Oliver, being approved by the executive committee, they were elected to membership by unanimous vote.

The legislative committee was continued by the president.

Dr. Yard called attention to the practice law stating that he would advise the changing of a few words in order to make it more effective. Dr. McCapes moved that the legislative committee make the necessary change and present it to the legislature. Carried. Dr. Yard moved that it is the sense of this association that the State Meat Inspector be a licensed graduate veterinarian. Carried. Dr. Dunleavy moved that it be the sense of the association that the State Dairy Commissioner should be a licensed graduate veterinarian. Carried. Dr. Warner moved that we support the

bill asking that $10,000 be turned over to the State Veterinarian for the control of infectious diseases within the State. Carried.

It being reported that Dr. F. Gilgen was in the hospital the secretary was instructed to write a letter of sympathy in the name of the association.

The election resulted as follows:

President—A. P. Drew.
First Vice President—F. D. Hylton.
Second Vice President—L. R. Dillon.
Secretary-Treasurer—I. E. Newsom.
Executive Board—V. J. Ayres, Fred Gilgen, C. W. Converse.

VISIT TO SERUM PLANT OF THE DENVER HOG RANCH COMPANY.

On the day following the meeting the members were guests of the Denver Hog Ranch Company. At the serum plant the various procedures in the manufacture of serum were explained and demonstrated. A lunch was served at noon and the occasion was made enjoyable as well as instructive.

PAPERS

SOME LIVER AFFECTIONS.
(Illustrated with Preserved Specimens.)
(A. G. Fisk and J. B. Bryant.)

Mr. Chairman, and Gentlemen of the Association:

In presenting this subject for your consideration, it is not the intention of the authors to go into any hidden nor obscure fields of research and bring to light startling secrets of the science of veterinary medicine. We simply wish to report on two cases that presented themselves in our practice, and that resisted successful treatment, at least as we prescribed.

Now, gentlemen, we feel that discussion of these cases is of little value, from the practitioner's standpoint, unless it tends to lead to a mode of clinical diagnosis and a course of successful treatment. Pathologically and scientifically the lesions may be of the utmost interest, but our clients do not view the matter in that light, they want their animals to live and to be healthy, or they want the veterinarian to tell them that the subject had best be consigned to the scavenger and thereby save the cost of unsuccessful treatment. So we suggest that the practical side of these cases receive due attention. We would like to know how to arrive at a diagnosis and how to treat successfully such cases.

Case No. 1 was a full blooded, 10 year old Jersey Bovine, in the dairy of W. H. Bartlett of Vermejo Park, New Mexico.

History: Sept. 1st, to all appearance, normal parturition; Sept. 25th, cow ailing with the following symptoms: Dullness, inappetence, slight rise of temperature.

Oct. 2nd, Dr. Fisk called to case, found pain upon pressure over the rumen, scant and mucus covered feces, slight rise of temperature, also slight icteric condition of mucus membranes, and slightly noticeable odor of escaping urine, exhaustion and emaciation rapidly advancing.

Diagnosis—Indigestion with complications.

Treatment consisted in the commonly used purges, massage of the rumen, stimulants, and for the septic processes Specific tr. of Echinacea was prescribed. Prognosis, very unfavorable. Subject died Oct. 5th. Post mortem was performed by the stableman, assisted by an M. D. and the lesions are here for your examination. The large cyst presented on the

liver contained a highly putrid hemorrhagic fluid, nearly a gallon in amount.

Case No. 2, canine, St. Charles Spaniel, age 8 years, house pet, female.

History. About four years previous patient had periodical attacks of dullness and inappetence. She was taken to best medical advisors in Chicago, and incidentally a fee of approximately $200.00 was paid out for treatment. Case seemed to make no improvement and about two years ago was sent to Trinidad, Colorado. Case was brought to our hospital Oct. 10th, 1914, with a history of an itching skin affection, dullness, loss of appetite, and progressing emaciation. Examination revealed normal temperature, icteric membranes, tense abdomen, pain upon palpation of abdomen, some ascites, and a yellow and somewhat viscid discharge from the vulva.

Diagnosis, either chronic metritis or hepatitis.

Treatment Spec. tr. of Echinacea and a tonic.

Oct. 14th case entered the hospital, for 10 days Echinacea and Fowler's Sol. was administered with apparent good results, there was a return to some extent of appetite and better spirits, so much so that owner requested the care of the case. Upon discharging patient lacto-peptone, echinacea and gentian were prescribed. Dec. 4th patient returned to hospital in a very weak and failing condition, and died the same night.

Post mortem exhibited about a quart of serous fluid in the abdominal cavity, uterus normal, the remaining lesions are here on exhibit for your benefit. Dr. Newson has had them at his laboratory and will undoubtedly have some information for our enlightenment.

Pathological report. Case 1. Section of liver filled with white spots about one inch in diameter. On the exterior the wall of what appeared to have been a large abscess eight inches in diameter. Pathological diagnosis. Perihepatic abscess, probably from foreign body with numerous metastases throughout liver. Cause of death pyemia.

Case 2. The abdominal viscera of a dog showing liver enlarged and spotted with gray, the right central lobe especially being very gray. The gall bladder was thickened. In the duodenum was a small ulcer that extended to the serous coat. Around this and extending to the pylorous the wall was much thickened and grayish in color. Sections from the duodenal wall and from the liver revealed typical carcinoma. Diagnosis, carcinoma following duodemal ulcer and with metastatic foci in the liver. Comment. This is very interesting as it appears that this sequence of events is common in man.

I. E. NEWSOM.

ANAESTHESIA.

(A. P. Drew.)

(Reconstructed from long hand notes by the secretary.)

A case of fistula of the abdomen was brought to me. After examination, I decided to operate. The evening before I gave one pint of raw oil and bran mash. The preparation of the patient is most important if good results are to be had from general anaesthesia. The animal was cast with harness, in a large room, a headstall adjusted so that the mouth was closed, the head extended by assistants, a sponge placed in the upper nostril, with the hand acting as a valve over the lower. The head is downhill if possible. I drop chloroform on the sponge until the eye is insensitive to touch, which usually occurs in three to ten minutes. I seldom use over six ounces of chloroform for any operation. If the animal is weak, I give a medium dose of atrophine and strychnine hypodermically an hour before operating.

When the eye is no longer sensitive I release the upper leg from the harness and extend it backward. Rectal examination by assistant in this case revealed a large swelling in the abdominal wall. It was incised, releasing about three quarts of pus. After properly taking care of the wound the whole animal was covered with blankets and he slept for an hour. I believe in blanketing horses well after anaesthetics have been given as they are apt to chill when in this condition. Also cover the head as they will sleep longer. Keep an attendant with the animal until he is ready to rise and then assist him to his feet. I believe in general anaesthetics for all serious operations. Treat the animal in a humane manner and you will be repaid both by your conscience and by the owner. Anaesthetics and other humane treatments constitute the difference between surgery and butchery.

I consider chloroform safe in practically all cases except where horses are suffering from pulmonary emphysema.

I use local anaesthesia (stovaine) for small operations. I use it in cattle for actinomycotic tumors. I use chloral in the rectum in the proportion of chloral 2 oz., glycerine 4 oz. and water 8 oz. with good results, giving it one hour before operating.

DISCUSSION

Dr. Carrol uses 15 c. c. of cannabis indica intravenously.

Drs. Drew and Fisk found cannabis uncertain.

Dr. Culver drew attention to a possibility of embolus from mixing cannabis with water and giving intravenously.

HOG INOCULATION.

(D. C. Patterson.)

Mr. President and Members of the Association:

It gives me great pleasure to read to you a paper on the use of hog cholera serum of which I know so little and you so much. But right on the start I want you, Dr. Lamb, to keep your eyes on Dr. Glover as I am certain that he will not agree with me. And if Dr. Hermann is not here, I wish you would send for him at once to applaud me when I am through for I know "The bunch from the old Aggie College" does not believe in the simultaneous treatment for hog cholera. Until in September this year, I was afraid to use it myself, but when Dr. Lamb and Mr. Miller came down to Sterling and inoculated several hundred, losing 125 out of a bunch of 145, I thought I could do as well myself. Especially so, since the fellows that had the heaviest losses were the greatest boosters for simultaneous treatment. I fell in line with the result that at the present nothing but Denver Hog Ranch serum could be used. I see a big future in the hog business down the Platte River and also on the table lands.

In school we had a little experience with the simultaneous method, losing 66 out of 99 hogs, to say nothing of the little pigs on the C. A. C. farm. Now why not take the common sense view of the situation. With cholera up and down every irrigation stream in the State, and people so constituted as to believe it is easier to dump a dead hog into a ditch or river than to bury or burn it, the control of the disease by any other means seems futile.

On the table lands where nearly every farmer or ranchman has from one to six dogs that always follow the owner wherever he goes, thus infecting the neighboring premises—is there any good reason why we should not use virus in the control of this disease. After you are once immune, you have no more fear of the cholera than children have of the measles or mumps after they are over them. If cholera surrounds you, you need not

worry even though you have from twenty-five to three hundred hogs ready for market. You can sleep in security, feeling that cholera can do you no harm.

In one of the cases mentioned later where the hogs were so sick that they could not rise, neighbors would drive for miles to see them. The owner would tell them to stay out, but instead, right over into the pen they went, kicking the sick fellows up, and saying, "They do seem to be sick." They walked here and there as though there was no danger, and seemed to feel as though it was an impossibility to do any damage at home. Self preservation is the first law of nature and down our way most everybody is trying to observe it. So I believe that inside of five years there will not be a hog raiser of any importance who shall not have immunized by the simultaneous method.

Of the last 1300 head not a single abscess was reported. I use iodine as a field disinfectant and use an 80 c. c. syringe with large, long needle in-injecting deeply into muscles of ham. Never use these syringes for anything else. Keep serum caps and hands clean.

On June 20, 1914, I had a call two miles west of Sterling as a large boar had died that morning. On arriving, I found there had been sickness among a client's hogs for some six weeks, some dying and others getting rheumatic, but living. On post mortem, I found the boar had died with purulent pneumonia. The odor was very offensive, but no lesions of cholera in abdominal cavity. Another sow had a bad case of pneumonia. We killed her and found no lesions of cholera in her abdominal cavity. In searching the premises, we found a small pig dead. On examination, kidneys were petechiated, ulceration around iliocecal valve and hemorrhagic lymph glands. About fifteen or twenty hogs were very sick. Some of the sows had very small pigs. Used Superior serum. Lost 30 hogs out of about 80. But owner was pleased as he expected to lose a large percent. The trouble here was to make the owner believe he had cholera, but he got thoroughly converted later, when other outbreaks occurred. Inoculated his little pigs from immune sows about Nov. 30th, giving the simultaneous treatment with no loss.

Next was only a scare as hogs were dying from dietic disorder. Inoculated with serum alone. Still a few died. No postmortem lesions of cholera in any hog although autopsy was held on six or eight. In the next bunch I lost 16 out of about 80. The serum evidently being bad as the cause of death was determined to be septicemia. Following this there was an outbreak in a herd of pure bred Poland China that were being fitted for the county fair. Only one died. The hogs were quarantined, the pens disinfected and everyone was kept out except the owner. He even went so far as to disinfect his shoes every time he came out of the pen where the hogs were. There was no further loss. Up to this time I had used only Superior serum from Kansas City.

Next outbreak a bunch of 65 head. Twenty-five were off feed, some could hardly stand up. By killing one, diagnosis was confirmed as lesions in abdominal cavity were typical; gave simultaneous treatment to all except sows with little pigs and pregnant sows. About 18 died, all of them being small pigs.

November 30th. Next bunch of about 145 head, with 60 sick; three so sick that they could hardly rise. Simultaneous treatment on all except small pigs. Loss 20, and all of pigs. One of the three sick unto death survived and is fattening fast, although he has no hair on sides or extremities. Others have narrow strip of hair along back, all the rest of body bare as a man. Would say in this connection, that I have just finished inoculating 163 head for same parties last Thursday and Friday to put on same premises.

Next was two bunches for same party containing about 220. No symptoms of disease. No loss. Next was bunch of 235, 6 or 8 sick, loss 3

besides sick. Some pigs that were not weaned according to instructions, and some little pigs not treated died.

Next was bunch of 85. No loss reported. Next bunch 340. Five lost in about twelve to fifteen days, typical cholera symptoms and lesions. Next bunch 110. No loss. Last bunch 170. Last Thursday and Friday.

Summary—Inoculate hogs while all are in good condition with simultaneous method, with potent serum. How are we to get this? By dealing with a firm that belongs in Colorado, that is morally bound to give us a square deal and is headed by one of our number.

DISCUSSION

Dr. Bird insists on better state police measures in controlling hog cholera. He thinks much of the cholera in the state could have been prevented by a more vigorous quarantine.

Dr. Lamb in answer to the question as to whether frozen serum is impotent, stated that freezing did not harm it. He gave an example where serum that had been frozen was used with good results. When asked if all hyper hogs lived he said, "No, but they die from infection and not from cholera." Asked how many times they were bled, he said usually three but that they might be used as long as there was a tail from which to bleed. The potency was equal in all three bleedings. The question as to simultaneous and serum-alone methods was then discussed with its usual vigor, both sides having strong adherents.

MEMBERS PRESENT

V. J. Ayres
R. H. Bird
F. W. Culver
G. W. Dickey
M. J. Dunleavy
L. R. Dillon
A. P. Drew
A. G. Fisk
Geo. H. Glover
F. D. Hylton
Chas. G. Lamb
I. E. Newsom
A. B. McCapes
A. G. Wadleigh
Ira Watts
C. W. Converse
A. N. Carroll
A. N. McGregor
Geo. L. Richards
D. C. Patterson
W. W. Yard
G. H. Oliver
J. B. Bryant
W. H. Johnson

UNIVERSITY OF ILLINOIS
FEB 18 1921

SEMI-ANNUAL MEETING

Fort Collins, May 28-29

Pathology Building, Colorado Agricultural College

BUSINESS MEETING

The meeting was called to order at 11:30 a. m. by the Secretary. A telegram was read from President Drew stating his inability to be present. The Vice Presidents being absent Dr. Chas. G. Lamb was elected president pro tem and served throughout the meeting. The Minutes of the Annual Meeting were read and approved.

The legislative committee reported that some minor changes had been made in our present law and presented to the legislature but no action was taken by that body. Dr. Glover reported that one law did pass, which provides for the appointment of deputies for the State Veterinarian; also that the State Veterinarian might call upon the Veterinary Department of the College for assistance; the expenses to be paid by the Stock Inspection Board. This led to a further discussion of the matter of deputies in which it was brought out that a deputy State Veterinarian might receive $5.00 per day and expenses during the time he was actually engaged in the service of the State.

Dr. B. F. Davis, State Veterinarian of Wyoming explained that in his state the deputies received $5.00 per day and 15 cents per mile for distance traveled during the investigation.

The Secretary-Treasurer reported as follows:

Balance on hand last report		$ 90.17
Receipts—Dues		61.00
EXPENSES		
Jan. 15, '15—Circular Letters	$ 2.50	
Jan. 19—Cigars	3.50	
Jan. 19—Janitor Gentlemen's Riding and Driving Club	2.00	
Jan. 22—Colorado Stockgrowers' Association	30.00	
Jan. 20—Phone	.75	
Feb. 10—Printing Stationery	5.25	
March 17—Circular Letters	1.00	
May 10—Stamps	1.00	
May 10—Programs	5.00	
Total Expenses	$51.00	
Balance on hand May 27		$100.17

The report was, on motion approved.

Delegates to the A. V. M. A. were appointed as follows: Geo. H. Glover, B. F. Davis, I. E. Newsom and any others who may attend the Oakland meeting.

The application of E. E. Tobin having been approved by the executive committee he was unanimously elected.

Adjourned.

PAPERS

THE RELATION OF THE VETERINARIAN TO HIS CLIENT.
(F. W. Culver.)

I am at a loss to know why our worthy secretary gave this subject to me, as it is a subject that should be handled by a Nestor in the profession, or a college professor. I am not so very old and I certainly do not claim to be one of the high ups in the profession.

Assigning this subject to me puts me in mind of a story. When the district to the south of us went under federal control some time ago, a saloonkeeper told his bartender to take home with him at night 10 gallons of whiskey that was in the house, as the soldiers would close the place the next day. When he came to take it, he found that all he had to take it in was an 8-gallon keg and he took it in the keg because he had to, but it was "Hell on the keg"; and so it is in this case. I can handle the subject, but it will be "Hell on the subject". This is a hard subject to handle because you have nothing to fall back upon. Take any other subject and you can turn to your thumb-worn text books or to your file of veterinary journals and find them teeming with suggestions and advice, but upon this important subject they seem to be silent.

I somewhere read this statement, "The physician is the only professional man in the world who devotes the best energies that he has to combating the conditions whose existence is supposed to furnish him a livelihood. The learning, research and untiring labor of every medical association in Europe and America is directed to the discovery and eradication of the causes of disease." This proud statement I believe would be true if it were changed so that it would include the veterinarian and veterinary profession.

Right here I want to say to you fellows that in my opinion this is the corner stone of our professional success. We want to impress it upon our clients, and upon all with whom we come in contact that we are not out altogether for gold and silver and the "long green", but that we have enlisted and are going to fight to the last ditch for the betterment of animal health, yes, and for human health also.

While it is proper to teach clients the laws of hygiene, and facts that relate to sanitary protection, that they may preserve the health of their animals and of themselves and families; it is neither just nor wise to try to teach them our art. If you do, there are some clients that will soon imagine that they know more than you, or any other horse doctor for that matter, and not only take your bread from you, but do much damage to their own animals and to those of some of their neighbors. You know a poet said, "A little learning is a dangerous thing. Drink deep or taste not." 'Tis true. It was true then. It is true now.

Often you will be asked about some patent medicine, tonic or condition powder. Now do not lose the chance to impress upon your client that these things are worse than worthless. The best thing they can do with a patent medicine is to throw it away. Not one in a hundred can do any possible good. And right here is a good time to make a little talk on animal dentistry, and at the same time give the traveling horse dentist a little punch. It is no sin. The good that it does is mutual. I have never been guilty of trying to puncture the tire of a regular practitioner, but when a fellow come along that I know has never burned any midnight oil, I feel it my privilege and my duty to point out his limitations to my clients and my associates, whenever I can do it.

Always ask for a consultation whenever you think that the patient's interest, or a division of responsibility demands it. Whenever you are in doubt, or see any need for a consultation, try to anticipate your client by being the first to propose it.

A few years ago I was treating a $4,000 stallion that was suffering

with pneumonia, and he was in bad shape. The owners were staying with him night and day, and doing everything that I asked, only we could not agree on ventilation as they were afraid he would take cold. I suggested a consultation. They told me to get anyone that I wanted, and keep him as long as I wanted to; do anything; only save the horse. I telephoned to Dr. Glover, who came to Longmont on the next train. Three or four of the Company and your humble servant met him at the train and took him to the barn. On the way he asked, "What is the trouble?" Mr. Webb, one of the Company, told him that they had a very sick horse; that he would soon be a dead one and they had sent for him to preach his funeral sermon, while they would all sing to the tune of $4000. Dr. Glover went to the stall with us, took his temperature and pulse, listened to his breathing, percussed his lungs, sniffed about the stall and then turned and said, "Gentlemen, you have a $4000 horse here. Suppose you cut a $4 hole in the barn here by the manger." It was done at once. In two hours the horse was eating and drinking, and he continued to improve from that time, made a good recovery and he is alive and well and doing good service today. That was all that Dr. Glover said or did. He took the next train back, but he saved the life of a valuable animal. But I take some of the credit upon myself. I found the doctor.

You remember a few years ago Roosevelt's "Country Life Commission" met in Denver, and called some of the prominent and successful farmers of the state before them to discuss our rural life needs. Mr. R. F. Coffin of Longmont was one of the farmers chosen. During the meeting he was telling the Commission what a fine family of boys he had raised on his little farm in Weld county. He said, "One is a lawyer, one is an electrician, two are farmers and last, but not least, one is a great football player." Here Mr. Bailey interrupted him, saying, "Those boys have a good mother." Mr. Coffin hesitated a moment and then answered, "Yes, but I take some of the credit upon myself. I found the mother. The point I want to make is this. If you have the choice of a consultant, try to choose a man who will reflect credit upon your judgment, upon himself and upon our profession.

It is my observation and belief that individually, with very few exceptions, veterinary practitioners are getting along smoothly with their clients, and that there is very little cause for complaint on either side; but I feel that there is some misunderstanding between farmers, as a class, and veterinarians, as a class, and I think that both sides are in the wrong. The editor of "The Nebraska Farmer" commenting upon this growing antipathy, says:

"Veterinarians must have burning ears these days from the way many farmers and stockmen are talking about them. In an article entitled 'Sway of the Veterinarians,' on page 461 of this paper, Mr. Ed. H. Magowan probably expresses the sentiments of many of his fellows. Not all of Mr. Magowan's complaints against the veterinarians are just, although there is occasion for dissatisfaction. A good veterinarian is a distinct asset to any farming community. But the veterinarians as a class have been too active in trying to make work for themselves. Any profession will lose caste when it does that."

My comment upon this is that when we are advocating or passing upon legislation relative to sanitary police we should look upon it almost wholly from the farmer's standpoint, or, to put it in a different way, put ourselves in their shoes.

Did you ever stop to think how education puts work into a man An ordinary hand does not think that he can stand much over eight hours and would not think of going out at night to do a little work, no matter how necessary, and he draws the line on Sunday work. On the other hand observe the physician, the veterinarian, the lawyer, the educated minister, the great teacher. Their energy and endurance seem to know no limit, and, like the proverbial "free horse", most any one can drive them to death.

In fact, it seems nothing short of death can stop them. They almost always die in the harness, doing good work. No night is ever too dark or any road ever too long and muddy for a true doctor.

"How sweet his fireside when the day is done
And cares have vanished with the setting sun!
Evening at last its hour of respite brings,
And on his couch his weary length he flings.
Soft be thy pillow, servant of mankind,
Lulled by an opiate, art could never find;
Sweet be thy slumber—thou hast earned it well,—
Pleasant thy dreams! Clang! goes the midnight bell!
Darkness and storm! the home is far away,
That waits his coming ere the break of day;
The snow-clad pines their wintry plumage toss,—
Doubtful the frozen stream his road must cross;
Deep lie the drifts, the slanted heaps have shut
The hardy woodman in his mountain hut,
Why should thy softer frame the tempest brave
Hast thou no life, no health, to lose or save.
Look! read the answer in his patient eyes —
For him no other voice when suffering cries;
Deaf to the gale that all around him blows,
A feeble whisper calls him—and he goes."

CASE REPORTS.

(A. B. McCapes.)

Mr. President and Gentlemen:

Believing I can best serve the interests of this meeting, by giving you some case reports, in preference to writing an article on some subject, with which you are probably more familiar than I am myself, I have picked out of my practice the following cases: First, a twelve year old horse, weight about twelve hundred pounds, owned in the vicinity of Boulder, for several years, if not during the full period of life. To me this case was very interesting, owing to its rare existence. Upon examination, I found a very hard swelling commencing at the angle of the lower jaw and extending downward to between the forelegs, resembling the swelling of Brisket Disease in cattle. Upon questioning the owner, as to time swelling had taken place, he said "about a month" previous, starting between the legs and extending upwards, and at this time, was so great as to prevent the animal reaching the ground to feed. He also stated that the animal's appetite was good, and was on heavy feed of oats and hay, but in spite of all, was losing flesh. Temperature was normal, pulse rapid, and small, not tense, heart beats, very violent, diagnosis, heart disease, prognosis unfavorable, treatment being useless. Another doctor was called to see this case later, and advised treatment, which seemed to do some good, as the swelling decreased to some extent, but the animal failed in flesh, and after two months died, suddenly and apparently without a struggle.

Autopsy—dropsical swelling, extending under abdomen, considerable fluids in abdominal cavity, heart enlarged, weighing ten and a quarter pounds, no organic change that I could detect, except an adhesion of one segment of the tricuspid valve of the left side of heart.

Case number two: A cow presenting all the symptoms of parturient apoplexy, although seven months had elapsed since the birth of her last calf. This man called me by phone, stating that the cow had eaten considerable corn chop and was foundered. Not wishing me to come, I advised a dose of salts, and paid no more attention, until the second day, about noon, he called me up, stating that the animal was down and nearly dead,

and that I had better come. Upon arriving there, I found all the symptoms of parturient apoplexy, the animal in best of condition, so far as flesh is concerned, and in a recumbent position, almost total loss of sensibility and truly in a precarious state. Never having seen these conditions, excepting within a few days following the parturition. I was at a loss to determine the cause as well as the true condition. However, the symptoms presented, were those of parturient apoplexy. I gave her the air treatment and went home, advising the owner to call me in a few hours, if the animal did not regain the standing position. This was about three o'clock in the afternoon. At nine o'clock that night, he stated the animal was better, lying up on her brisket, had drunk some water and was eating hay. The next morning at six o'clock, she regained her feet and has been well ever since.

Case number three: This was also a cow, several months after calving, showing that wabbly condition, presented in the first few hours of parturient apoplexy, temperature normal, no previous intimation of being sick. Air treatment administered and in a few hours this cow also was well.

In my practice, extending over twenty-five years, I have never seen these conditions presented before, and I had never heard of such from any other doctors up to that time, but since talking with other doctors, I found one who states that these conditions are common. Would like an expression from the gentlemen here, as to their experiences.

Case number four: Those of two calves, dying of blackleg, one three weeks old, extra fat, right shoulder swollen, showing symptoms of blackleg, especially after the skin had been opened; the other calf was three months old, right quarter showing same symptoms; both of these calves very fat. I have always considered, from authorities, that calves up to six months old were safe, without vaccination, and I presume the very large per cent are so. However, it is apparent that calves may be affected with blackleg at practically any age.

DISCUSSION.

Dr. Brady mentioned three cases of valvular insufficiency that occurred in his own practice.

Dr. Whitehouse told of a case where a two year old heifer and her sucking calf both died of blackleg at about the same time.

Dr. Lamb mentioned a case where a cow six or eight years old died of blackleg.

Dr. Miller saw one seven years old dead of the same disease. In this case a calf had died in the same yard a few days previously and two calves died there on the same day as the older animal.

Dr. Glover spoke of a four year old cow dying in the college pasture from blackleg. He said that localized edema is not necessarily associated with heart trouble.

Dr. Eakins mentioned the possibility of meat inspectors passing calves affected with blackleg unless special examination was made.

CONTAGIOUS ABORTION IN COWS

(I. A. Phinney.)

Of all diseases to which cattle are subject contagious abortion probably causes the dairyman and breeder more loss than any other, causing as it does not only the death of the fetus but also a considerable diminution in milk production.

Hutyra and Marek define contagious abortion as "those cases occurring in otherwise healthy mothers as a result of external infection, producing

inflammatory lesions of the uterine mucus membrane and of the fetal membranes and usually occurring in an enzootic form."

As early as 1567 Mascal noted that 50 to 60 per cent of cows aborted in certain localities in England. In 1826 d'Arboval contended that there was a contagious abortion among cows. In 1880 Brauer produced abortion through the introduction of vaginal discharge and fetal membranes into the vaginas of healthy cows. Bang and Stribolt in 1896 discovered the bacillus causing contagious abortion.

Contagious abortion occurs to a greater or lesser degree in nearly all dairying and breeding localities and especially among the better bred animals which seem more predisposed to the infection than the coarser breeds.

Etiology—Contagious abortion in cows is caused by the Bacillus Abortus (Bang) which is a short and comparatively thick bacillus, non-notile and forming no spores. The bacillus stains easily but not uniformly with both aqueous and carbolized analine dyes.

The infection exists in the excretions of the genital organs, the fetal membranes and in the liquor amnii of infected cows, and the stables and premises become contaminated with these discharges.

The disease is transmitted to healthy cows by their coming into contact with the discharges of infected cows. The disease is often introduced into a healthy herd through the purchase of cows from an infected herd. The male often carries the infection from diseased cows to healthy cows. The disease may also be carried by attendants. Here I would like to impress the fact that Veterinarians treating or removing the placenta from cows which have aborted should thoroughly disinfect their hands and arms and change clothing before visiting a healthy herd.

Bang proved that cows might become infected through the intestinal canal by the ingestion of food and water contaminated with amniotic fluid and placenta of infected cows. Lack of food, poor food and water, exposure, in fact any condition which lowers the vitality increases the susceptibility of the animal to the disease.

Pathogensis—The contagion on reaching the uterus multiplies on the surface of the mucus membrane and later also on the fetal membrane. The infective material produces an inflammation as a result of which a fibrino-purulent exudate forms between the mucus membrane and the chorion, which loosens the fetal membranes. The inflammatory process extends to the connective tissue between the chorion and allantois as well as the navel cord causing them to have a gelatinous appearance. The bacteria may also pass into the body of the fetus either through the circulation or by means of the aminotic fluid. In consequence of the loosening and detachment of the fetal membranes, abortion may occur in various stages of gestation.

Hadley gives some interesting statistics as to the number of times a cow may abort. Of one herd of 700 cows where careful records were kept, 133 aborted in a period of three years. Of those that again conceived 28.6 per cent aborted a second time, 14.2 per cent aborted a third time while 57.2 per cent aborted but once. An animal after aborting conceives with difficulty and sometimes not at all. Three abortions usually produce an immunity to the infection.

McFayden and Stockman describe the cotyledons of aborting cows as being soft, pulpy and of a grayish color.

Symptoms—Contagious abortion usually occurs about the fifth to seventh month of gestation but may occur at any period from two months until full time. A live calf may be born from the seventh to the ninth month, but is usually very weak and soon dies.

Premonitory symptoms are: Swelling of the udder, congestion of the vaginal mucus membrane, a brownish catarrhal muco-purulent discharge from the vagina. Usually there is a formation of small nodules on the mucus membrane of the vulva and vagina. Abortion usually occurs about three days after the appearance of the discharge. A dirty foul smelling vaginal discharge often remains for sometime after abortion which sometimes affects the health of the animal and often she becomes sterile. There

is always a diminution in the yield of milk. The number of cases may vary from a few to nearly the entire herd. Cows suffering from the disease usually abort from two to three times, when they become either immune or sterile.

Treatment—Prophylaxis consists in removing cows, which have aborted, from the herd and isolating them. The placenta, fetus and all bedding should be burned and the entire stable thoroughly cleansed, disinfected and then whitewashed. The vagina and uterus of cows which have aborted should be thoroughly irrigated with a solution of carbolic acid (1%) or creolin (2%). The vulva and tail and hind quarters should be washed with some reliable antiseptic solution. This should be repeated once daily for 7 to 10 days. The vagina and vulva of pregnant cows should be given the same treatment. After treating the infected cows the attendant should change clothes and thoroughly disinfect his hands and arms before treating the non-infected cows. Rubber tubing, etc., used for the infected cows should not be used around the non-infected animals. If there is a bull in the herd the hair should be cut short around the opening of the sheath and the sheath irrigated once daily with a ½-1% lysol solution or a 1 to 1000 solution of Potassium permanganate. Prauer recommends the subcutaneous injection of 2% carbolic acid solution, giving 10 c. c. weekly. One to two pints of a 1% solution of carbolic acid administered orally once daily has also given good results. For the last two years much has been written on the treatment of contagious abortion with methylene blue, which is much safer than carbolic acid. This should be given in ½ ounce doses once daily for 6 days, then every other day until 6 doses have been given.

During last March, I treated a herd of cows with methylene blue in which 3 cows had aborted. At this time there has been no more cases of it in this herd.

DISCUSSION

Dr. Davis discussed what was reported as contagious abortion from the Big Horn basin. There were twenty-eight outfits affected. Eighteen inspections were made and many of the animals were treated by feeding carbolic acid. After a thorough investigation he became satisfied that it was not contagious abortion but merely sporadic, due to a non-infectious cause.

Dr. Whitehouse stated that it was his experience that there was a great deal of abortion in Wyoming. During one year when he was ranching on the Laramie Plains 60% to 70% aborted. He believed, however, that the abortions were due to heavy snows on cattle not properly protected, rather than infection. His experience at Boulder, Colorado, led him to believe that the abortion was due largely to Granular Vaginitis where the disease is very prevalent and very serious.

Dr. VanSickle spoke of excellent results from methylene blue treatment in Wisconsin.

Dr. McGregor told of an experience with the disease near Fort Lupton. On one dairy three cows aborted in one night and two more the following week. Carbolic acid treatment was followed by a subsidence of the disease. Others used methylene blue in one and one half dram doses on the feed with good results. Viburnum prunifolium was used in one ounce doses twice daily on some animals threatened with abortion. It was found very expensive. He mentioned the necessity of manual intervention for the removal of the placental membranes in most cases where contagious abortion existed.

Dr. Converse spoke of cases where a tablespoonful of methylene blue daily gave good results. He also said that he believed in his territory some cows abort from eating pine needles.

Dr. Brady says there are 5000 cows in his district; that there is some

abortion but does not believe it is contagious. He attributed it to various causes as feed, care, etc. Methylene blue failed to stop it.

Dr. Glover spoke of the ease of getting testimonials to the curative value of any line of treatment. He said one man near Pueblo had all preparations made for giving the methylene blue treatment but instead turned the cows out on the range. He never lost another calf. He says the disease seems to run out without treatment, does not have much faith in carbolic acid or methylene blue, but thinks attention to sanitation will do much to eradicate the trouble. He says he receives three thousand letters annually, a large percentage of which are in regard to contagious abortion showing that it is a very serious disease within the State.

Dr. Culver told of being present at the meeting of the Illinois state association, and that the men there had no remedy although they had given most all of the so-called ones a thorough trial. In his practice he never advised owners to sell or kill the aborting animals but to keep them and breed up a clean herd. Clean up the premises, haul away the manure and let in more light, he thought good advice.

He gave a rather complete history of a herd that came under his observation. The first year nearly all the cows aborted, the second year not so many and the third year they carried their calves to the full time. The heifers in this herd do not abort but if brought in from outside they become affected. Pregnant cows can be put in to the herd without losing their calves. He thinks the herd is now clean. No medicinal treatment was used.

WHITE SCOURS IN CALVES.

(C. C. Stewart.)

White Scours or Dysenteria Neonatorium is an acute contagious, infectious disease affecting animals in the first days of their lives, generally occurring through stable infection, and is characterized by profuse diarrhoea and rapid exhaustion.

This paper shall be devoted to the affection of calves, as the disease in these animals is much more extensive and hence of more general importance than in other species of sucklings.

Until the past fifteen years the disease has been considered resultant from diatetic errors or climatic conditions, though there was some investigation as early as 1865 which tended to prove that the disease could be transmitted from one stable to another.

It occurs mostly in spring and fall and most often in herds where more or less confinement and congestion is present, hence is not frequent among range cattle.

The disease, from extensive investigation, appears to be caused by the Bacillus Coli Communis or one of the relative varieties.

The bacillus is an aerobe and for further information regarding cultivation, etc., I would refer to our college Bacteriologist.

The colon bacilli from the bodies of calves which succumb to the disease though resembling morphologically those bacilli isolated from the excrements of normal animals are very pathogenic for newly born calves. A weakened condition of the intestinal tract greatly favors the virulence of the bacilli.

Other bacilli are apparently the cause of White Scours but there are usually differential characteristics between this and true White Scours.

The disease appears, seemingly spontaneously in some localities substantiating the theory that it is due to a virulent form of the bacilli which are normally present in the intestines. Contamination of the pens or corrals where the calves are born and kept seems to be the way in which infection occurs. The germs may be taken into the digestive tract from the udder and teats of the mother and probably from inhalation and swal-

lowing of mucous. It is very apparent that infection is frequently due to umbilical infection. In two instances of recent date in my practice careful disinfection of the navel of the newly born animals has relieved the mortality materially and lessened the number of calves affected almost immediately, and in one herd, badly infected, navel disinfection together with thorough cleansing and disinfection of the stable entirely eradicated the disease. (5% phenol solution being used in stable, with quick lime and 2% phenol for the umbilical disinfection.)

Stables may retain the infection from year to year; one herd, to my knowledge, being affected in the same pens for four consecutive years. Intrauterine infection has been proven to be possible, by injections of cultures of the colon bacilli into pregnant cows shortly before parturition, but it seems to be of rare occurrence in ordinary cases, as cows, under the same conditions as others whose calves, born in infected pens quickly develop scours, where parturition occurs in pasture or in uninfected premises the calves do not contract the disease unless brought in contact with the contagion.

The Bacilli produce an inflammatory condition of the digestive tract and enter the circulatory system and cause general septicemic conditions.

Rapid emaciation is one of the most pronounced anatomical changes. There are varying intestinal changes revealed upon post mortem. The abomasum is consistently changed, the mucous lining being loose and general congestion and inflammatory conditions present. The intestines are usually congested and contents are dirty-white to grayish and sometimes streaks of blood and clots of milk present. The intestines sometimes do not exhibit changes which would indicate a fatal malady, but the mesenteric and other lymph glands always are enlarged, tending to show that the absorption of toxins and presence of bacilli in the circulation has much to do with the calf's death.

The lungs usually appear edematous and I find that these organs seem at times to be more severely affected than the intestines, yet at times on post mortem they show little change.

The first symptoms occur in from twelve to sixty hours after birth. The calf refuses to suck and appears dull and depressed. The diarrhoea begins early and it becomes very weak. The feces are very disagreeable in odor and has a yellowish-white or grayish color, is often foamy, and when the calf becomes very weak will bubble out of the anus frequently. Sometimes there will be streaks of blood and partially digested clots of milk present. There is quite severe pain in passage of feces at first, but usually this is lessened as the disease advances. The abdomen is very sensitive to massage or pressure, and the whole body appears greatly emaciated.

The temperature varies but little, sometimes, however, I have found it subnormal shortly prior to death. They seldom live more than seventy-two hours after the first symptoms are observed. The percentage of loss is usually high unless careful steps are taken for prevention and eradication of infection from the stables.

The disease is sometimes confused with other forms of scours, but those farmers who have experienced it usually recognize it readily. In one case recently witnessed, a farmer reported White Scours in calves from two days to two weeks old; upon investigation, however, I found that the change of feeding from alfalfa hay to corn fodder with a considerable grain content to the cows was responsible for the severe scouring of the calves, and a suspension of the corn ration immediately checked the disease. Indigestion from over feeding of milk or other foods is never characterized by the peculiar whitish fetid foamy condition of the feces even though it be very fluid and quite profuse.

In regard to treatment, sulpho-carbolates have given better results in my practice than any other one treatment. Phenol-free sulpho-carbolates of calcium, sodium, zinc and copper; thirty grain tablets, one tablet three times daily to effect, being used. In very severe cases castor oil, ounces ½ and Tr. Opium m. 10. followed by feeding of oat meal gruel and raw

eggs (2-3 per day) gave the best results. Parched flour ounces 4 in four feeds in small quantity of boiled milk frequently relieves very obstinate cases, especially when given with sulpho carbolates, and succeeded by castor oil. The following prescription has given good results also: Tr. ginger, one dram; Tr. nux vomica, one dram; camphorated Tr. opium, one dram; lime water sufficient to make sixteen ounces: dose—½ ounce twice daily.

Creolin and Lysol (5-10m. in water and milk of each equal parts ½ pint) gave good results in fairly strong calves.

All possible care should be given to the comfort, and preservation of the strength of the calf and thorough disinfection of the pens and of the navel of the animal should be one of the very first considerations.

If possible to remove the advanced pregnant cows to uninfected quarters it should be done, and always remember the calf that is born at pasture and kept away from the infected herd is almost sure to be exempt from the malady.

Immunization is as yet in the experimental stage. Reports have been given, however, of the successful immunization of calves by injections of sterile cultures of the colon bacilli into the mother shortly before parturition. This phase would offer an excellent opportunity for the efforts of our State College Bacteriological force and I shall be glad to cooperate with them at any time when the disease is prevalent in my field of practice. I predict that next spring will furnish much material for any work of this nature. I shall now be very interested in any suggestions in the discussion of this very serious disease.

DISCUSSION.

Dr. Converse recommends disinfection of the navel and disinfection of the premises, but knows no treatment for affected animals. He stated that he had never seen it in a calf that was born at pasture and remained there until the navel was dry.

Dr. Culver mentioned a case where 38 calves were lost in one season but that after the cows were turned to pasture no more were lost. It seemed to be the consensus of opinion that it was a stable and corral disease and that prevention was easy but treatment was of no avail.

FLOATING COLON IMPACTIONS.

(Geo. L. Richards.)

Gentlemen:

The subject of this paper, although a very common disease, is one that has interested me greatly and no doubt has aroused the curiosity of many of you. I have chosen this subject more because of what I might learn regarding this condition in after discussion; than of the theories and treatments that you should gather from this paper. Also, our worthy secretary at the last meeting, made an appeal for more articles on cases in every day practice.

By "floating colon impactions", I mean obstruction of only that portion of the bowel extending from the great colon to the rectum, by fecal material composed of rough feed as alfalfa, straw, oat hay, etc. Our text books are sadly deficient in regard to this grave disease. They speak of constipation, obstipation, impactions of the stomach, small intestines, cecum, great colon. and bowels in general, but apparently forget that the horse has a small colon. Evidently this condition is not as general or as serious in the Eastern states and foreign countries, where most of the text books are written, and where methods of feeding are altogether different.

Let us now for a moment consider the anatomy of the intestinal tract of the horse. First, there are the small intestines, seventy feet in length, emptying into the cecum of four linear feet and great capacity. Then

follows the great colon, twelve feet long, and still greater capacity. Next comes the small or floating colon, twelve feet long, and the rectum of one foot. Thus we see that the total distance from the stomach to anus is approximately one hundred feet, the longest hundred feet on record when one attempts to move a floating colon impaction by Oral Medication. The terminal portion of the great colon ends in a sudden funnel shaped contraction. From this point on, the floating colon cares for the waste material by forming it into feceal balls. Here then, is a mechanical proposition that acts as the primary cause of obstruction. Our physiologies state that the content of the large colon at this point is of the consistency of thick soup. However, under abnormal conditions, when rough dry feed is given during winter months, and little water drank, combined with poor mastication, the contents at the termination of the great colon become more solid and being crowded into the funnel shaped aperture to the small colon, completely obstructs that organ. This obstruction, under the constricting power of the bowel, quickly takes on the size and shape of an ordinary cantaloupe.

Now we have the problem before us. A large fecal ball, four inches in diameter to be passed through an elastic tube three inches in diameter and twelve feet long. The motor power to be furnished by two linear muscular bands. Believe me, gentlemen, this problem cannot be worked by algebra! The only solution is by a few gymnastic stunts which will be explained later.

You are all more or less familiar with the symptoms, but there are two which I choose to discuss for a moment. These are flatulence and auto-intoxication. All animals with impaction do not develop flatulence, but the prognosis in those that do is very serious. The point that I would wish to bring out is that an impaction of any consequence acts as a stoppage to all intestinal contents, including gas. So in diagnosing the case, if the animal passes flatus, even in minute quantities, you may rest assured that there is no clog or else one small enough to successfully make the journey to the rectum. Large impactions, moving slowly as they do, provoke a slight irritation. In response to this irritation mucous is thrown out which clings to the surface of the ball, thereby further sealing the lumen and retarding the passage of the obstruction. I have removed large clogs at arm length, and upon breaking through the last, the gas rushed past my arm like coming from a compressed air tank. Too much emphasis can not be placed upon this point in diagnosis and prognosis.

Auto-intoxication is one of the last stages of the disease. The length of time an animal will carry an impaction before showing effects of poisonous absorption from the bowels, depends upon several conditions: The character of the contens of the intestines as regards fermentation; the stamina of the animal and individuality. Once active absorption of toxins has started, there is little hope for the patient. You are all probably too familiar with the symptoms to review them here.

The treatment that has been in vogue was to give one or two quarts of linseed oil and perhaps some salts or an aloes ball. After waiting twelve or eighteen hours; if there was no bowel movement, hypodermics of arecoline or eserin were used, with the belief that the oil or salts had had plenty of time to reach the impaction and soften it. Now as a matter of fact the intestinal tract is practically dormant and the oil or salts has almost all remained in the stomach, where it does more harm than good by increasing the agony of the already exhausted animal. And even if the entire contents of the intestinal tract up to the impaction were liquid it would have very little effect in removing the obstruction, covered as it is with an impervious coating of mucus. In fact I believe that a floating colon impaction was never directly moved by oral medication. Then if we do not use drastic cathartics, either hypodermic or oral, what are we to do. The solution is to direct the treatment as near as possible to seat of the disease by way of the rectum. Rectal injections are to be given every two hours, not with the idea of softening the clog, but to stimulate the contractions of the small colon. In the nervous type of animals, we often find that the

contractions of the colon are violent and spasmodic. To control this condition and at the same time alleviate the pain, I administer one grain of morphine sulphate hypodermically. This morphine is to be dissolved in very hot water as the desired results are not obtained with cold or luke warm water. More than one grain of morphine should not be used at one time and not repeated under four to five hours. In this way we do not get the constipating effect of the drug. The combination of morphine and rectal injections causes the colon to contract regularly and without the spasms that retard the passage of the obstruction. After a few hours of this treatment, the impaction, if not too large, will move back to a point where it may either be picked to pieces with the fingers or broken up by a forced stream of water. Sometimes they pass out of their own accord. If in the meantime the animal begins to show signs of weakness, I administer dram doses of fluid extract of Nux Vomica every hour after the impaction has been removed and the peristalsis started. I often give a quart of oil to remove the poisonous contents and allay the slight irritation of the bowels. This completes the treatment.

In summary, I would like to impress the three high points of this paper, viz: First, the anatomy of the intestinal tract of the horse, including the length, and the funnel shaped termination of the large colon, as the primary cause of obstruction; second, the fact that flatus cannot be passed when there is an impaction of any size in the small colon; third, the treatment which is sedative and not purgative.

DISCUSSION

Dr. Culver does not agree with the essayist as to treatment but feels that he has had excellent results from oil. He gives it in two quart doses through the stomach tube. He uses rectal injections. Gets value from strychnine in ⅛ grain doses and eserine and arecoline same dosage. Uses barium chloride in small doses. He much prefers the small doses repeated, to the large doses used by some. Likes the lock syringe, believing that some obstructions can be removed by its use that would resist other means. Thinks oil sometimes prevents other balls from lodging.

Dr. McCarroll says if bloated, wash out the stomach and put in stimulant and antiferment. He puts oil into the cecum directly through the trocar. He has a tube arranged with a metal ball on the end with which he can flush out the colon much higher up than by the ordinary tube. He can by means of the ball throw a force of water directly against the mass thus often breaking it up.

Dr. Kingman thinks there are few cases of colonic obstruction that can not be manipulated through the bowel wall and thus softened and broken up. He presses them against the bony pelvis at some point. Thinks 2 grains of morphine too large a dose and gets good results from subcutaneous injections of normal salt solution in quantities of one half gallon. Quotes Dr. Merrillat who says that if eserine relieves a horse he could have been relieved by other means.

Dr. Richards said that he had never seen oil on the impacted mass but that on post mortem he usually found it in the stomach.

Dr. Brady uses Epsom salts with good results.

Dr. Patterson gave it as his experience that pain and flatulence go together.

Dr. Miller said he had seen many of these cases in pain without flatulence.

Dr. Paxton says the time will come when early laparotomy will be the standard procedure.

Dr. Whitehouse says operate early if at all.

CLINIC

CASE NO. 1.
Cyst of False Nostril.

Operator: Dr. N. J. Miller, Windsor, Colorado.
The cyst was incised through the nostril so that later no scar would be visible. After evacuation the cyst was dressed with tincture of iodine. Recovery.

CASE NO. 2.
Cryptorchid.

Operator: Dr. A. B. McCapes, Boulder, Colorado.
The technique is described in a paper read before the Colorado Association in 1913. The incision is made over the internal inguinal ring and the hand forced between the parietal peritoneum and the inguinal ligament until the attachment of gubernaculum is reached, here the peritoneum is punctured with one or two fingers and the vas-deferens grasped; the testicle is then drawn out and ablated. If properly carried out the incision need not be sutured. The animal made a rapid recovery.

CASE NO. 3.
Osteoma On Inferior Maxilla.

Operator: H. E. Kingman, C. A. C. Veterinary Department.
History: Of one year's standing and constantly becoming larger. Examination of the mouth revealed a portion of the lower fourth molar lying comparatively free from attachment, the mucous membrane covering the bone beneath the piece of tooth. The offending member was removed and the tumor trephined, with the idea of stimulating resorptive processes. Communication with the mouth was not established. Recovery.

CASE NO. 4.
Roarer.

Operator: H. E. Kingman, C. A. C. Veterinary Department.
History: Case of long standing and the animal was subject to severe attacks of "heaves".
Symptoms: Aside from the characteristic symptoms of emphysema, respiration was more difficult, upon inhalation, than exhalation, but there seemed to be no fluttering sound.
Technique: Exploratory laryngotomy through the crico-thyroid space; the left arytenoid remained quiet during respiratory movements. The left ventricle was stripped of mucous membrane, and the wound dressed with tincture of iodine. Animal showed no improvement at the end of two months.

CASE NO 5.
Castration of Colt.

Operator: Dr. Charles Converse, Castle Rock, Colorado.
Standing operation.

CASE NO. 6.
Scrotal Hernia of Colt.

Operator: H. E. Kingman, C. A. C. Veterinary Department.

Covered operation. Scrotum packed and sutured. Packing removed after twelve hours. Operation successful, but at this writing colt has scrotal hernia of other side.

CASE NO. 7.
Pyemic Arthritis.

Dr. Newsom.

Brown gelding, 12 years old. History: Animal had suffered from impaction some two weeks previously, and owing to extreme flatulence repeated use of the trocar became necessary. This resulted in a flank abscess and finally in a generalized condition, manifesting itself very prominently by swollen articulations. The case was shown especially to demonstrate the value of making blood counts in cases where suppuration is suspected. A series of counts made on this animal were read, showing that the white blood corpuscles had increased to the neighborhood of twenty thousand per cubic millimeter, the largest percentage of which was of the neutrophile variety. The blood was drawn and the whole process carried out before the members. Recovery.

CASE NO. 8.
Umbilical Hernia.

This case was presented to show the results of the skewer method in the treatment of small hernias. Complete recovery in twelve days.

CASE NO. 9.
Pruritis.

Dr. Whitehouse.

A very fat mare, showing scaly condition at the roots of the mane and on the sides of the neck. Tincture of iodine and iodine ointment were recommended, but the case passed out of our knowledge, and the outcome is not known.

CASE NO. 10.
Chronic Ossifying Arthritis of Tarsal Joint.

History: Case started with severe lameness and great distention of tarsal sheath. Articular inflammatory processes were suspected and a radiograph was taken which clearly showed osteophites, involving the upper row of tarsal bones. An unfavorable prognosis was given. This was in September, 1914. At the time of clinic, May, 1915, the distention of the sheath had largely disappeared but an enlargement of bony hardness remained over the tibio-tarsal articulation and the animal was still very lame. Again prognosis was given as unfavorable.

CASE NO. 11.

Chronic Ossifying Arthritis of the Second Interflangeal Articulation.

History: Bay mare. Had been lame for several months in both fore limbs, but more especially in the left. Both feet showed well developed side bones. Radiograph showed ossifying process over lateral ligaments. Digital neurotomy was recommended.

CASE NO. 12.

Chronic Gonitis.

History: Case of five months' duration. Had been fired and blistered several times.

Symptoms: Leg held flexed. Synovial capsule distended, atrophy of crusal and gluteal muscles. Prognosis unfavorable.

CASE NO. 13.

Autopsy.

Dr. I. E. Newsom.

Holstein cow that had been under observation for some two weeks previous to the meeting. From clinical symptoms and a number of blood counts, the latter showing a leucocytosis of some 57,000 per cubic millimeter, most of which were neutrophile, a diagnosis of foreign body abscess had been made. The post mortem examination revealed abscess of the spleen with a tract leading from the reticulum within which was found a small wire nail. It was believed that the diagnosis of this case was much assisted by the blood counts made.

MEMBERS PRESENT

T. H. Brady
F. W. Culver
Geo. H. Glover
H. E. Kingman
Chas. G. Lamb
I. E. Newsom
R. N. McCarroll
A. B. McCapes
N. J. Miller
R. L. VanSickle
A. W. Whitehouse
Ira Watts
C. W. Converse
John D. Paxton
A. N. McGregor
Geo. L. Richards
O. W. Seher
D. C. Patterson
E. E. Tobin

THE BANQUET AND BALL

At 6:30 p. m. on the first day of the meeting the members and their ladies sat down to the banquet of the Veterinary Medical Association of the Colorado Agricultural College. The following unique menu and program is included.

Index Convivii

I. Fragariae vescae cum Saccharo

II. Pullus gallinaceus Modo

Meridiano

Bulbi Solani commixti

Pisa viridia

Coagulum Muria

Olivae

Rahpani

Crustula panis oblonga

III. Fructus conditus

Crustula rotunda

IV. Flos lactis congelatum

Panis dulciarius

Mentha

Potus Coffeae

Prosit Jupiter

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Toasts.

Toastmaster.....Dr. Geo. H. Glover

The Epistrophic Nucleoli of Parakinesis.....Dr. A. P. Drew
President of the State Veterinary Medical Association.

Anaplasmosis of the Rarer Protids.....Prof. Geo. E. Morton

Perspicacity in Spring Lambs.....Miss Marie Harris

Neo-Charchisma.....Albert A. Goodman

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Colorado Veterinary Medical Association
Proceedings for the year

PROCEEDINGS

FOR THE YEAR

1916

Colorado Veterinary Medical Association

Edited by the Secretary

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Thirteenth Annual Meeting at Denver
Tuesday, January 18th

Fourteenth Semi-Annual Meeting at Fort Collins
Thursday and Friday, June 1st and 2nd

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L. R. DILLON, Pueblo ..... 1st Vice President
T. H. QUINN, Greeley ..... 2nd Vice President
I. E. NEWSOM, Fort Collins ..... Secretary-Treasurer

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J. B. BRYANT, Trinidad

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Thos. N. Slayton ..... Greeley
R. C. Swallow ..... Fort Morgan
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A. W. Whitehouse ..... Fort Collins
M. J. Woodliffe ..... Denver
A. G. Wadleigh ..... La Jnnta
H. J. Waller ..... Pueblo
Ira Watts ..... Longmont
M. J. Warner ..... Johnstown
F. B. Wilson ..... Collbran
W. W. Yard ..... Denver

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ANNUAL MEETING

The annual meeting of the Colorado Veterinary Medical Association was called to order by President Drew at 10:30 a. m. in the rooms of the Gentlemen's Riding and Driving Club. Following the roll call, it was moved and carried that the minutes as published in the Proceedings be adopted as the official minutes for the semi-annual meeting.

A communication was read from the Colorado Stock Growers' Association, asking for the appointment of a delegate to the meeting of the executive committee of that body. After considerable discussion the consideration of the matter was left over until the semi-annual meeting, with the exception that the retiring president, Dr. Drew, was unanimously selected to attend the executive committee meeting for this year.

Six new men, Drs. A. J. Dickman of Salida, A. M. Sevey of Brighton, H. V. McCullah of Ft. Lupton, F. B. Wilson of Colbran, Thomas N. Slayton of Greeley and Stewart W. Beggs of Lamar were elected to membership, their applications having been approved by the executive committee.

President Drew called attention to the fact that the prohibition law did not make provision for veterinarians to purchase or dispense alcohol except in the same manner as can be done by any other individual. On motion of Dr. Warner a committee was appointed to draft such legislation as is necessary to put the veterinarians on the same plane as the physician in this respect. An amendment by Dr. Ayres that this committee also consult with the Attorney General and the United States District Attorney was carried. The president appointed the following committee: Drs. M. J. Dunleavy, G. W. Dickey and M. J. Woodliffe. This committee was expected to report as early as possible on any ruling made by the state and government officials.

SECRETARY-TREASURER'S REPORT

To January 15, 1916.

Number of members, 52.

Money on hand May 27, 1915	$100.17
Received from dues	22.00
	$122.17

Disbursements

June 11, 1915—Advertising	$ 2.25
May 28, " —Cigars	3.50
May 28, " —Lunch	26.75
Oct. 28, " —Printing Proceedings	40.00
Oct. 28, " —Stamps	1.50
Nov. 1, " —Envelopes	.70
Dec. 3, " —Post card printing	1.50
Dec. 31, " —Secretary's salary	20.00
Jan. 4, 1916—Programs printing	4.50
Jan. 5, " —Stamps	1.00
Total	$101.70
Balance on hand January 15, 1916	$ 21.47

PAPERS

REPORT OF THE MEETING OF THE ASSOCIATION OF LIVE STOCK SANITARY BOARDS

(Charles G. Lamb)

It was my privilege to attend a meeting in Chicago on November 29th and 30th, 1915, called by the U. S. Department of Agriculture for the avowed purpose of getting closely in touch with the people interested in the recent outbreak of foot and mouth disease; to hear criticisms as to methods employed in its suppression and to get suggestions so that the Department might be fully prepared to deal with future outbreaks.

The meeting was very largely attended by Department officials, stock breeders, feeders and buyers, veterinarians, stockyards' representatives, dairymen, railroad men and other interests allied to the stock interests.

It developed that one of the chief reasons for antagonism to the officials' efforts to enforce the slaughter method of extermination was the uncertainty of owners as to whether they would be reimbursed for their loss. It was arranged that the government should pay half the appraised value and the state the other half. The government was prompt in the payment of their half, but the state in some cases was dilatory. Without doubt, the states will eventually pay their proportion, but the uncertainty of the owners was a great handicap in the work of eradication. If this uncertainty can be removed the work of cleaning up any future outbreak will be much simplified. Much criticism was developed as to amount paid, in the case of pure bred animals especially, many contending that amount paid was much too small, and many pleaded that in future outbreaks efforts be made to save these valuable seed animals.

Criticism of many matters of detail, particularly as to areas of quarantine, were offered. Some even said that the veterinarians were more busy spreading the disease than in checking it, in order that their employment might be prolonged. If the object of the Department was to get criticism and suggestions, I think they accomplished their object.

The outcome of the meeting was to show conclusively that the only way to fight such a disease is for each state to co-operate with the U. S. Department of Agriculture to the fullest extent, and that any other course would be disastrous not only to the individual state but to the country at large.

On December 1st and 2d I attended a meeting of the U. S. Live Stock Sanitary Association, composed of state veterinarians and live stock sanitary officials. Practically every state was represented and a very interesting and instructive meeting was had. Among the many interesting papers read may be mentioned "Pasteurization of Milk and Milk Products," by W. M. Barney, dairy commissioner of Iowa, showing the benefits that had been derived in that state from the compulsory pasteurization of milk at creameries. A very instructive paper and one of great interest to me and many Colorado practitioners, was read by Dr. Eichorn on "Investigations on Immunization Against Anthrax," showing the progress made by the government with anthrax serum, and seemed to show that the time is at hand when it will be possible to immunize animals against anthrax with a double treatment almost exactly the same as swine are immunized against hog cholera, and seemed to show some curative value in the use of serum alone. If it proves as successful as experiments indicate, this

treatment will be of great value in many localities in the United States and in some localities of this state.

"Infectious Pneumonia of Calves Shipped From Public Stock Yards," by Dr. A. T. Kinsley, was a very valuable contribution on a subject of great interest to practitioners in almost every section of the state, as many have had a disastrous experience with this trouble.

"Hog Cholera Investigations," by Dr. M. Dorset, who is in charge of the government hog cholera work, was an extremely instructive and interesting paper and made clear many features that have puzzled the minds of many who have had to deal with this branch of practice. Other valuable papers were presented by eminent authorities on such subjects as "Official Control of Production and Distribution of Serum," "Tick Eradication," "Co-operation Between Government and State Officials in Control of Contagious Diseases," etc., etc., making it a most valuable meeting for all who were privileged to attend.

I would strongly advise each member of the Association to provide themselves with a report of the meeting when published, as I believe they would get information on live subjects that could hardly be obtained in any other way.

SUNDRIES

(By G. W. Dickey)

In answering the question propounded by Dr. Dickey, as to whether urine should always be black in cases of Azoturia, several of the members shouted no, and it appeared from the discussion to be the concensus of opinion that this symptom which seemed to be so prominent was not at all essential to a diagnosis of the disease.

Dr. Woodliffe, in answer to a question as to the percentage of recoveries from this disease in his practice, stated that it was not over 50 per cent. Dr. Ayres says that he did not lose one in ten, and he, being asked for his treatment, stated that he gave usually one ounce of turpentine, or proper dosage of digitalis, with one pound of salts, and that in every case he put the horse in slings, using for this purpose a hay stacker which is to be found on practically every farm. Dr. Woodliffe said that he had discarded the slings entirely and did not believe that they were of service in treatment of this disease; especially had this proven so in his practice if the horse could not stand. Dr. Ayres contended that there were few horses that could not stand after they had been slung for a time. It appeared in this case, as in most other discussions on this disease, that the percentage of recoveries is much higher in the country than in the cities.

SANITARY POLICE CONTROL OF HOG CHOLERA IN WESTERN COLORADO

(R. H. Bird)

The question of the sanitary control of animal plagues is one in which we are all interested. To enforce this control it follows that we must have suitable ordinances in active operation, made under the laws regu-

lating infectious and contagious diseases. Judging from the state of affairs today in Northern Colorado, I fear that whatever ordinances are in existence regulating hog cholera, they are more honored in the breach than the observance. Ordinances that are merely issued by authority without providing the machinery to enforce them are but dead letters. I am not conversant with the hog cholera situation in other parts of the state, but I can speak with some degree of assurance about it in my own district. Let us see what the situation is there. It may be but a sample of what prevails in other districts. For the past two years cholera has been increasingly prevalent, causing no end of worry to the hog raiser, as well as large money losses. Previous to the appearance of cholera the hog industry had been growing and was promising to develop into a very profitable one. Today this is widespread cholera territory, extensively infected and under quarantine ban for the avowed protection of the community districts outside of it.

But what about the interior of this quarantine area? Is there any effort being made to control the spread of the disease from the various points of infection? Is there any local quarantine of infected farms? Is there any official supervision over the cleaning up and disinfection of infected premises or over the disposal of diseased or dead hogs? Was there any official restrictions upon travel and traffic between infected and healthy territory? In fact, is there any police sanitary control whatever in operation to prevent the devastation caused by the spread of this most subtle and destructive virus? If such there is, I have never seen it in operation. When one considers the exacting regulations enforced by law in safeguarding human lives against the spread of infectious maladies, it seems strange to say the least that hog cholera should have been permitted to attain the dimensions it has without some well directed effort having been made to arrest its progress.

Now, as an individual country practitioner, I realize that cholera has created a demand for veterinary services; also that hog practice, while it may not appeal to us as ideal, has been reasonably remunerative, which is a consideration not to be ignored by the most fastidious member of the profession in its present economic status. But I venture to ask, in all sincerity, are we fulfilling our professional obligations to the public if we let the matter rest at that and keep blind to the fact that any claim we may have to be sanitary experts is a pure fiction if we are careless in urging that all sanitary requirements be observed in our respective localities whenever there is an outbreak of the disease. It is presumably the duty of every veterinarian handling cholera hogs to impress upon the owner the need of observing these precautions, but as he is not armed with police authority but little attention is apt to be paid to his instructions, especially if it entails any labor or expense. I don't know but what it might be detrimental to the interests of any private veterinary practitioner to undertake gratuitously to superintend sanitary police work. One would naturally think that cholera hog owners, on account of the interests they have at stake, would voluntarily conform to ordinary sanitary observances. Intelligent well-read men on the cholera question undoubtedly do so, but it is the careless, ignorant individual who not only neglects himself but becomes through his shiftlessness a danger to the surrounding neighborhood.

It is difficult for the foreign settler, many of whom own small bunches of hogs, all of which may probably be either dead or dying from cholera, to understand the highly infective nature of the virus or the many channels by which it can be conveyed around the country. Where sanitary police control is most urgently needed is when diseased hogs are allowed to roam at large on farms, trespassing on neighbors' property or on the public highway; when carcasses are not disposed of, either by burning or burial, and

when there is contamination of irrigating canals, ditches and reservoirs by putrid carcasses. These practices are criminal and of too common occurrence, and the local authorities seem unable to contend with them.

The serum treatment of cholera is not pertinent to this subject, but I will briefly refer to one form of that treatment, the "simultaneous." With some justification this method is blamed for the continued spread of cholera. That it propagates the disease indefinitely wherever used cannot be denied, but in defense of that method it may be contended that so long as criminal neglect of all sanitary laws is the abiding rule in any district, the veterinarian there is in a manner coerced into following this method. I may say that the artificial establishment of another fresh focus of disease does not materially affect the general situation. It must surely be evident to us all that unless a change for the better is made in our present lax method of handling hog cholera, in short, unless we have ordinances that are rigidly observed, the disease will become a permanent curse and ruin to the hog business.

What is the remedy to be suggested? District organization for community protection has been advocated and may have been successful in certain localities. Perfect co-operation and unanimity of sentiment is needed for such an undertaking, with the ability to furnish the sinews of war in the shape of the almighty dollar. This system has been advocated at farmers' meetings. The farmer has gained the impression that because he is a large taxpayer the state should assist him in all his live stock troubles, and so far as professional advice goes, of an admirable quality, it has been tendered him generously and freely, and it is to be hoped that he appreciates it; but when it comes to a question of instituting a systematic crusade against disease with the concomitant expenditure of cash—he discovers that the state can afford him no consolation in that shape. He is told to organize and protect himself, that self-preservation is the first law of nature, and other beautiful platitudes of that order. This seems to be a diplomatic, though evasive, policy to advocate and places the whole responsibility of cleaning up hog cholera upon the affected owners themselves, their backs being already burdened with taxation to the breaking point.

Experience has shown that the effective stamping out of all animal plagues has to be engineered by the state, as the continued existence of a plague in any particular section affects the economic welfare of the whole community. Enforced sanitary police control is the kernel of the hog cholera problem in Colorado. Until that is attained the conditions that confront us today will continue to confront us in the future, and in aggravated form. I think it must be conceded that the hog cholera muddle in certain districts of this state is, to put it mildly, exceedingly discreditable, and that it is our bounden duty as a veterinary organization to make every legitimate effort to secure vigilant sanitary police control of the disease whenever and wherever it may prevail. It has occurred to me that probably the State Stock Board may have a plethora of funds but that it is a sheer sense of modesty that is hampering them from disbursing in this praiseworthy cause. But I expect that a special appropriation bill by a beneficient legislature will be the only way to effect any sanitary reform in the hog cholera line. Let us all work for such a measure if it ever materializes.

If but a slight part of the energy—financial and moral—that was exerted to rid the state of the saloon plague was now being exerted to rid it of hog cholera, I would feel that it was as good as attained. I fear, however, after all is said and done, hog cholera, like that other veterinary bugbear the automobile, is here to stay, and that even under a vigilant police system of sanitary control there will be periodical visitations of the malady. The best we can look forward to is to keep it within reasonable

bounds. The tendency of all animal plagues is to exhaust themselves or to become modified in virulence, influenced by climatic and many other conditions. A compulsory slaughter and compensation law is never likely to become operative in these United States. I believe, however, that a nation-wide measure of this kind would be the only way of effectively stamping out the malady.

I apologize for the many imperfections of this short address. It has been hurriedly compiled. Also for any criticisms I have indulged in. They were prompted by the most friendly feelings.

Discussion—In answer to Dr. Bird's question propounded to him directly, Dr. Lamb stated a vehement No! He followed this by saying that he had been in Weld County at the express invitation of one of the county commissioners, that he had, in company with Dr. Bird, visited a large number of ranches, and that in practically every instance he found hog cholera present. He said that there was apparently no interest taken in the matter by the owners of the hogs, and that no sanitary measures of any kind were being followed. He believed that as long as the owners themselves were in such an apathetic state that it was impossible for the state to help them. He stated, however, that if at any time any considerable number of the ranchmen of Weld County cared to actually clean up their farms, he would, as state veterinarian, lend every possible assistance. This brought about considerable discussion on hog cholera in general. In answer to questions, Dr. Lamb stated it was Dr. Dorset's view that in the use of the simultaneous vaccination no disease was spread if the hogs do not sicken. He believed that large doses of serum were essential and that most veterinarians used too little. Dr. Bird contended that if the hogs did not sicken they may not be immune, and therefore he left the inference that simultaneous vaccination, if efficient, would usually spread the disease.

Dr. Meinzer detailed an experiment which he conducted in which eight pigs—two or three weeks of age—were taken—half of them given the serum alone and half of them nothing. At two months the four which received no treatment were given the simultaneous vaccination—30 days later all pigs were exposed to cholera. Those which had received the simultaneous vaccination survived, while those that received serum alone died. This appeared to indicate that the immunity from serum alone had not lasted for the two months intervening. He believes that serum alone should always be given in case the pigs are not yet weaned, and that under ordinary conditions they should be given the double method after weaning. However, he does not advise the double method in his own district, because there they have attempted to eradicate the disease, using serum alone almost entirely. Dr. Ayres said that in his experience, if you waited for the pigs to be weaned before vaccinating, that they would usually die. He detailed a case which happened in his district, which seemed to indicate that the infection was carried in the manure of the slaughter house yards for two years, finally breaking out following a flood. Dr. Patterson stated that he knew of a number of men who had vaccinated a year ago by the double method and that although they had not vaccinated this year they had not lost any hogs. Dr. Meinzer believes that the infection is carried in the manure.

PERFORATED BOWEL IN THE HORSE

(A. P. Drew)

On November 5th I received a call from Mr. Whittekein, at the Durham stock yards, to come as soon as possible and see a horse that had been

gored by a steer. Upon inquiring as to the nature of the injury, Mr. Whittekein informed me that while trying to catch a steer that had escaped from the stock yards the steer had gored his horse just in front of the stifle, and the bowels were hanging out about six inches. I directed him to get a clean laundered towel, wrap it around the bowel, and hold it from coming out any farther until I arrived. Also to boil two gallons of water.

Upon my arrival I found an aged bay mare, weighing about 1,000 pounds, perspiring freely, pulse and respiration accelerated, pawing and wanting to lie down. I administered one-quarter grain each of strychnine and atropine, placed my instruments in a pan to boil, then wrapped a sheet around the animal's abdomen, securely fastening it by sewing with strong twine, leaving the towel wrapped around the protruding bowel. The casting harness was then adjusted and the animal cast on a canvas blanket. Chloroform was then administered until anasthesia was complete. After thoroughly cleansing my hands I had the sheet and towel removed, the abdominal wound was about eight inches forward of the stifle joint and some eight or ten inches of the small intestine protruding. The bowel was somewhat congested, completely filling the circular wound in the skin made by the steer's horn. On examining the bowel I found a tear about two inches long, from which fecal matter was discharging. I then irrigated the bowel and skin in the vicinity of the wound for several minutes with warm normal salt solution, and placed pads of aseptic gauze wrung out in salt solution around the skin wound and bowel. An assistant then held the bowel, grasped firmly between the gauze pads, exposing only the torn surface, while I stitched the wound with an aseptic gut suture, being careful to bring the serous surface in contact. Turning the edge of the wound in about one-eighth of an inch, the bowel was again irrigated with warm salt solution and the skin opening enlarged until the bowel could be returned to the abdominal cavity without using force. The muscles and peritoneum were found torn for several inches and the skin incision was extended until the peritoneum could be grasped with forceps, and was then stitched with a chromic gut suture. The muscles were also stitched with a chromic gut suture, and the skin closed with braided silk interrupted sutures, placing a piece of iodoform gauze at the lowest point for drainage. The hair was then clipped off around the skin wound, painted with tincture of iodine and dusted with powdered camphalum. The animal lay quiet for about an hour after the chloroform was discontinued, then was assisted to her feet and placed in a box stall. Her head hitched short so she could not lie down, and food and water withheld for 24 hours. Water was then given in small quantities. Food was withheld for another 24 hours. After this a light diet, consisting of bran mash and a small quantity of alfalfa, was allowed, and the wound dusted twice daily with camphalum.

November 6th, pulse and temperature normal.

November 7th, pulse and temperature normal. Animal very hungry. Some oedema around the wound.

November 9th, pulse and temperature normal; slight discharge of pus from the drain. Administered one ampoule of polybacterins. Painted wound with tincture of iodine.

November 15th, stitches were removed; wound healed except small place where drain had been. At this time animal was turned loose and allowed to lie down for the first time since being injured. Also placed on full ration.

I credit the successful termination of this case, first, to the administration of an anaesthetic; second, to the free use of normal salt solution; third,

not disturbing the hair or skin except to irrigate it with salt solution, until the bowel had been returned and the wound sutured.

DISCUSSION

The discussion having turned to treatment of fistulous withers or poll-evil, Dr. Drew stated that his treatment was to pack with chromic trioxide and the insertion of pieces of common garden hose for drainage. He stated that for local anesthesia he uses quinine and urea, one per cent, some hours before the operation was to begin. He believes that many did not get results because they operated too quickly after injection.

Dr. Kingman stated that he was now using for drainage, tubes made from common bamboo fish poles, with small holes bored at small intervals throughout the length. He also called attention to the use of gum mastic dissolved in benzol for sticking a bandage onto the wound in any location, thus holding the edges together. He said that this material would produce immobility of the parts and that it would not be dissolved by the wound secretion. When ready for removal, it could be dissolved with benzol.

Dr. Savage called attention to the use of five per cent salt solution which has been brought especially to our attention by its use in the war. He said that when he was a boy, he remembered that the farmers treated their wounds very satisfactorily with salt water and now the medical profession was coming to see the value of this material.

Dr. Kingman told of a case in a six-months'-old colt where the animal died of hemorrhage of the kidney, apparently due to strongylus aneurism. Post mortem revealed a very large aneurism of the anterior mesenteric artery with large numbers of larval strongyli present.

He also mentioned that he was using the X-ray on many cases of lameness and fractures in order to make a more perfect diagnosis. He stated that he now had the facilities for treating fractures by the open method and he would be pleased to receive any such cases that the veterinarians themselves did not feel competent to handle.

Dr. Fisk said that he had very good results in the treatment of fractures occurring below the knee or the hock, and that most mules in this condition recovered under proper treatment provided the fracture was not compound. He said that he puts on a layer of cotton and then a layer of wet muslin. This muslin to be interspersed with dental plaster. He used about five pounds of plaster for each case. The leg is supported by means of from two to four steel strips. Dr. Savage gave a method for drenching pigs which had been shown him by a layman and which had proven satisfactory. He put the medicine in a bottle and then put a piece of garden hose over the end of the bottle and the other end in the pig's mouth, raising the pig's head slightly, so that medicine could be poured in as the pig chewed on the hose and that in very few instances was there any difficulty about drenching.

Dr. Watts added to this by telling of a case where a farmer drenched pigs by cutting a little hole in the toe of a shoe, letting the pig chew the toe of the shoe while he poured the medicine through this, acting as a funnel.

A PECULIAR CONDITION IN HOGS

(John D. Paxton)

On December 22nd I was called to see a small herd of hogs belonging to a farmer near Las Animas.

I found fourteen pigs averaging about forty pounds. Out of the fourteen, five appeared all right, three were completely paralyzed and the remaining six were having peculiar fits. They appeared blind and would run into each other and into the sides of the pen. Some were turning around in circles and others were laying down and kicking. The owner said they had been running out on a sugar beet field all fall and about four days before he had shut them up in a pen and started feeding sugar beet tops, alfalfa and corn. Almost immediately after penning them up they developed the above symptoms with no change to amount to anything since. The three that were paralyzed had not moved for twenty-four hours.

I had the five that appeared all right moved to another pen by themselves. I then killed the three that were paralyzed and held autopsies on them. I concluded that they were suffering from cerebro-spinal meningitis, and I started the following treatment on the six sick ones: Each pig received sixty grains of sulphocarbolates comp. (Abbott), two ounces magnesium sulphate and one dram potassium iodide twice a day, in a drench. Up to the third day not much change was noticed except that most of them were able to drink a little and eat a little corn when it was placed under their noses. From the third day the recovery was very rapid and medication was discontinued on the seventh day.

All six pigs made a complete recovery and at this writing are on their way, and will make fine porkers soon if cholera don't overtake them. I do not know if this condition is common or not in pigs. I do not know whether I made a correct diagnosis. I will say that the condition was a new one on me and proved very interesting.

PROCEEDINGS OF THE SEMI-ANNUAL MEETING HELD AT FORT COLLINS, THURSDAY AND FRIDAY, JUNE 1 AND 2.

BUSINESS MEETING

The Association was called to order in the Civil and Irrigation Engineering Department of the Colorado State Agricultural College at 11 a. m., with President F. D. Hylton in the chair. The minutes of the Annual Meeting having been read and approved, communications were read, as follows: From Dr. O. A. Longley relative to the emblem to be adopted by the American Veterinary Medical Association. No action was taken on this communication. One from a committee having in charge the raising of a fund for English, French and Belgian veterinarians rendered destitute on account of the war. On suggestion of Dr. Whitehouse that the English Government was offering comparatively large salaries to veterinarians for army services no action was taken on this. One from Dr. W. Horace Hoskins relative to the Salmon Memorial Fund. On motion of Dr. Glover, the Association voted to have the Secretary ask each member of the Association to contribute one dollar toward the fund.

Letters were read from Drs. J. C. Exline, Robert H. Bird, A. P. Drew and A. N. Carroll stating their inability to be present.

The applications of Drs. Cecil P. Lamb, Otis Perrin and O. B. Morgan having been duly approved by the Executive Board, were received, and the applicants elected to membership in the Association.

The report of the Secretary-Treasurer was read and accepted, as follows:

RECEIPTS

Balance on hand, January 15, 1916	$ 21.47
Receipts, dues and initiation fees	91.00
Total	$112.47

EXPENSES

Cigars	$ 3.75
Janitor	2.00
H. E. Kingman, expense in connection with 1915 clinic	4.00
Stamps	3.00
Printing	10.75
Total	$ 23.50
Balance on hand May 29, 1916	88.97

The subject of the prosecution of unlicensed men received an unusual amount of discussion on account of the apparent violation of our law on this subject by a man near Sterling. A considerable amount of correspondence relative to this case which had passed between the President of the State Examining Board and the Secretary of the Association was read. After a thorough airing of the whole matter, Dr. Glover moved that this Association does now go on record as giving its moral support to the prosecution of any violation of the State Veterinary practice act that is deemed worthy of prosecution by the District Attorney. The motion was seconded and carried. Dr. Lamb moved that the President of the Association be instructed to go to Sterling, consult with the District Attorney in regard to the case under consideration, and if the latter deemed it advisable the President should file the information and proceed with the case, the Association paying the expenses. Seconded and carried.

Dr. Fisk moved that the President be allowed $5.00 per day when on Association business. It was moved and seconded that a legislative committee of three, whose duty it would be to draft and submit to the next legislature laws of interest to the veterinary profession, be appointed. Motion seconded and carried. The following committee was named: Drs. Charles G. Lamb, F. W. Culver and A. G. Fisk.

PRESIDENT'S ADDRESS

(F. D. Hylton)

Gentlemen: Very often in our lives we are assigned some task to do, which seems like we can never accomplish; that is, what we think will not be suitable or proper in the minds of others such as the occasion demands.

From the time I was elected to the office of President of this Association, I have had a feeling that it would not be so hard to serve in the capacity as President if it were not for the President's address. If it were possible for me to make signs as is sometimes necessary to try to make some Russian understand about a sick cow, my task would be much easier.

Nevertheless, I am very grateful to you for the honor you conferred upon me, because I have done nothing to deserve it.

The veterinary profession is advancing day by day, and the time is not far away when we shall be looked upon as equal to any other profession.

During the dreaded foot-and-mouth disease which had such terrors in the eastern states, and now that it has practically all disappeared, the veterinarians have certainly done wonders in keeping it within bounds when they were working against so many obstacles and wise people who wanted to see it spread to all our states. Think what it would mean if foot-and-mouth disease should spread to our western states.

Now that we have recognition in our army gives us greater encouragement, and that a point has been gained that has long been fought for. Heretofore army service has held but very little attraction to veterinarians.

This year has a very prosperous outlook for a bountiful crop, but our clients are buying more Fords and automobiles than ever before, thus decreasing the number of light horses; also our clients buy autos, gas, and pay car hospital bills, but a great number of them think the veterinarian can wait for another year's crop to get pay for his services.

In the State of Colorado we have many important subjects for consideration. More stringent laws governing the sale and disposal of diseased animals. A state fund for reimbursing owners for slaughtered animals that are diseased. Let me say that I believe if we had county veterinarians who are commissioned deputy sheriffs and co-operating with the state veterinarian for enforcing quarantine regulations, and such other duties as might come under his supervision, it would be a great benefit and we could obtain quicker action when any outbreak of infectious disease should occur. Of course all this cannot be accomplished in a day, but will take time and some perseverance.

If the treasury of this Association ever has an overabundance of money, why could we not elect one member to represent us at the annual meeting of the A. V. M. A.? Any member of this Association who is not a member of the A. V. M. A. should make application for membership, not only for his own benefit but it will be a help to many others.

Now, as we have many better papers to come that will be of greater interest to us, I will quit and let you hear something really worth while.

I thank you.

CONTAGIOUS ABORTION AND GRANULAR VAGINITIS

(A. A. Hermann)

Note: Dr. Hermann's paper was not obtainable.

DISCUSSION

Dr. Whitehouse bore out the statements of Dr. Hermann relative to the seriousness of Granular Vaginitis, and stated that it had been his experience at Boulder that the disease had caused ten per cent of the affected herds to abort and that it had caused in addition to the regular manifestations rheumatic disturbances, vegetations on the tricuspid valves and uterine nodules. He thought that veterinarians generally did not consider this

disease as seriously as they should. Dr. Lamb told of an instance in which contagious abortion had affected range animals, at least one of the animals having responded to the agglutination test for this disease. He felt that the profession did not have sufficient knowledge of this disease in order to properly recommend measures for its control and especially so under range conditions where even the usual measures could not be applied. Dr. Fisk asked if a distinction was to be made between Granular Vaginitis and Contagious Abortion. Dr. Hermann, in replying, contended that the two diseases go together, but that he has not had experience with abortion. Dr. Newsom emphasized the present confusion that exist in regard to these diseases, and also our lack of knowledge on any proper methods of handling them. He stated that the Experiment Station was taking up a study of the matter in the hope that some definite course mught be outlined for properly handling of these cases. It was estimated that Colorado dairymen and breeders lose a fourth of a million dollars annually from these difficulties.

BLACK TONGUE IN DOGS

(A. N. Carroll)

Canine Typhus, Black Tongue or Stuttgart Disease.

Black Tongue among dogs, while very prevalent in the southern states, has been little known as far north as Colorado. In Pueblo we have had, within the last year, what might be termed a small epidemic for during the fall months I lost something over a dozen cases. Previous to this time I would get a case now and then, and as I remember, my diagnosis was usually constipation, enteritis poisoning or most frequently mycotic stomatitis, and I could, in many cases, substantiate the latter by a history of the dog having eaten something mysterious that had been found in the ashpit or swill barrel, but various treatments along these lines were equally productive of results and the autopsies failed to prove my diagnosis or show the cause of death.

With a suggestion from The Journal of Veterinary Medicine, I was able to associate this trouble with Black Tongue as reported in the Journal by Dr. L. F. Koonce, of Raleigh, North Carolina; also a description of canine typhus by Huytra & Marek.

Black Tongue is a very fatal infectious disease, especially among old dogs. In my experience the mortality averaged one hundred per cent. There seems to be quite a difference of opinion as to whether or not it is infectious, for in some cases only one or two animals die in a large kennel, and again on some farms every dog placed there for a year or two would die with the same disease. Experimentally producing the disease by inoculation or injection of infectious material, such as bile saliva, etc., has proven very unsatisfactory for in many cases no symptoms developed.

Nevertheless, with nothing else to blame for the cause, most authors believe it to be an infectious disease if for nothing else than the uniformity of symptoms.

Symptoms—The dog is first noticed to refuse food and hunt some secluded place. He will drink water, but this causes vomiting which persists in spite of most any treatment, when anything is taken into the stomach either voluntarily or by drench. The vomitus is usually foamy and colored with bile and toward the last it may be dark brown or even black.

At the onset there is a constipation which, when relieved, develops into a tarry, foul-smelling diarrhoea. The animal appears stiff in the legs and toward the last is very wobbly and staggers when walking.

An examination of the mouth always reveals the most characteristic symptoms. The mucous membrane has a dirty brown color, with a number of reddened patches; around the gums and corners of the mouth are seen many gray colored ulcers which has occasioned my pulling numerous teeth in hopes of relieving some of the trouble. The odor from the mouth is very offensive. The whites of the eyes show the same brownish color as the oral mucosa. Another symptom I find in nearly every case is clonic muscular spasms of certain groups of muscles, especially around the head. The animal becomes weaker as the disease progresses, and death results in from five to ten days.

The only diseases showing similar symptoms are Malignant Malarial Jaundice or Piroplasmosis, a poisoning caused from eating putrid meat.

Treatment I have found to be very unsatisfactory, but usually consists of oils, antimetics, intestinal antiseptics and mouth washes of either saturated solutions of potassium chlorate or chinosol sol. 1 to 100. I have had the best success by flushing the alimentary canal and in one case the animal lived nearly a month and besides the extreme emaciation, was apparently over the disease when part of the tongue sloughed off and the owner advised destruction.

A few men advocate the use of diphtheria antitoxin (human) from 4,000 to 8,000 units, and report a few cures while others have received no benefit. I have had no success with the antitoxin in a few cases, but believe it might be beneficial if used at the starting of an attack in conjunction with other treatment.

Post Mortem Findings—Mouth shows lesions as described under symptoms. Contrary to Huytra & Marek's article on anatomical changes, I find the stomach and intestines either nearly normal or only slightly congested and containing a small amount of tarry liquid. The serus membranes and abdominal fluids colored a brownish tinge. Liver congested and gall bladder distended. Lungs normal. A peculiar penetrating odor is noticed on opening the abdominal cavity.

A laboratory examination of this disease would be interesting and I believe productive of results by finding an organism and then a bacterium for treating the malady.

Typhus in man, from which Black Tongue derives its name, in times past and still at present among the uncivilized, has been very fatal. It is transmitted by the body louse, and recently a bacillus has been found producing the disease; also a successful serum treatment.

DISCUSSION

Dr. Whitehouse said that he had seen four or five cases in Boulder, and that all had died. Dr. Eakins pointed out that one authority believed the disease to be caused by hook worms. Mr. Hall, who had considerable experience with the disease in South Carolina, said that the symptoms given by Dr. Carroll correspond to those he had seen. He said that thymol in the hands of veterinarians at the Experiment Station at Clemson College did not give satisfactory results. He said that a post mortem examination usually reveals the mouth ulcerated, but the stomach and oesphagus normal. In one instance where a well dog was placed in the same inclosure with an affected one, the former showed some symptoms of the disease but unfortu-

nately he was thought by the owner to have rabies and was shot before a thorough trial could be made. Dr. Dickey pointed out a similarity between Black Tongue and Pellagra and quoted from a southern veterinarian, who contended that a diet of eggs and milk proved satisfactory in the treatment of early cases. Dr. Fisk stated that in his practice in Denver he had treated a dog for three weeks that might have been affected with Black Tongue, but that it was later pronounced as dumb rabies. Dr. Perrin stated that he had seen between two hundred and three hundred cases in his practice in the south. That often one leg drops, and nervous symptoms are shown similar to chorea. In one instance a well dog was fed the ground viscera of an affected animal. The disease was not transmitted. It occurs during damp seasons, and under these conditions if a well dog be tied in a damp place he will take the disease when exposed. He had used sodium cacodylate and nuclein, and believes in washing out the alimentary canal with rectal injections. Some of the cases treated recovered. He said that it was a common practice for the laymen to use salt solution.

HEMORRHAGIC SEPTICEMIA

(A. W. French)

The subject chosen for this paper is an old one, yet up until a few years ago has not been a common one in the west.

The history of hemorrhagic septicemia dates back into the sixties. The Germans have named it rinderseuch; some Americans called it corn-stalk disease; while in the buffalo the name is barbone. In the study of it in Italy, Hungary, and Egypt, the disease has been found to have been transmitted to the ox from the buffalo. In Germany the wild animals, such as wild boars, roebucks, and deer, contract the disease; here it is known as wildseuch. The disease in cattle, wild animals, and buffalo, all depend on similar micro-organisms and presents similar symptoms and lesions.

One of our earliest outbreaks in this country was in the State of Minnesota in 1900. Later the affection known as corn-stalk disease was studied in Nebraska. It was believed that the leaves and top shoots of the stalks caused the disease indirectly, but that the direct cause was a bacillus of the fowl cholera type.

The disease occurs most frequently during the winter months and may appear in sporadic, enzootic, or epizootic form—young animals being most susceptible to it. All parts of the body are virulent—including the blood, saliva, urine, milk, and dejecta. The specific bacillus may be present in the soil, especially in damp or marshy districts; also in water contaminated by organic material.

The most common mode of infection is through contaminated food which infects the pharyngeal mucous membrane through erosions caused by prickly particles of food. This explains the early symptoms so often met with in the oedematous lesions of the posterior aspect of the mouth and pharynx.

Symptoms—There are certain symptoms common to all forms of the disease, of which there are three forms. These appear suddenly and include marked constitutional disturbances, rigor, accelerated pulse and respiration, a temperature of from 105 to 107, injection of the visible mucous membranes, cessation of rumination, painful mastication, a flow of viscid saliva from the mouth, and tenderness of the pharyngeal region to pressure. Other symptoms occur depending on the form the disease assumes.

The three forms of the disease are: First, the oedematous; second, the pectoral; and third, the intestinal. The first named is the most serious form. The oedema of the head, intermaxillary space, neck, tongue, and dewlap, often cause the animal to die from asphyxia in a few hours. The skin of the affected region becomes swollen and the subcutaneous connective tissue may be infiltrated with a sero-gelatinous material. The submaxillary and superior cervical lymphatic glands show enlargement and sero-sanguineous infiltration. Stomatitis, with salivation, may be observed. The swellings on the face, neck, and dewlap are extensive and are hot and painful to pressure. The tongue is greatly swollen and of a purple or brown-red color. It may protrude from the mouth and the mucous membranes at the side of the organ may form loose projections of a gelatinous nature. The visible mucous membranes are cyanotic and often covered by ecchymoses. The fever sometimes reaches 110 degrees F. My experience with this form of the disease in Wyoming is that after noticing an animal sick, they live from twelve to forty-eight hours.

Pectoral form. This is characterized by marked dyspnoea and symptoms of acute pneumonia. The course is somewhat longer than with the oedematous form and may last from six to eight days; however, animals succumb in a few hours. I have found this form more prevalent than either of the other forms.

Intestinal form. Symptoms are those of enteritis. This form is often associated with the oedematous form. Upon autopsy we find lesions characteristic of the different forms of the disease. In the oedematous form we find the thickening of the skin around the lesions already mentioned, the sero-sanguineous infiltration of the subcutaneous connective tissue, tongue swollen and on section yellow fluid exudes. Ecchymoses may be present on the serous membranes, the endocardium and intestinal mucosa. In the pectoral form hemorrhagic lobular pneumonia may be observed and pulmonary oedema is almost always present. Pericarditis and hemorrhagic enteritis are frequent complications with ecchymoses in different parts of the body.

Prognosis. Up until a few years ago the prognosis was always very unfavorable, as from fifty per cent to ninety per cent of all affected animals died; but since the age of vaccine therapy became known there has been a vaccine prepared that acts almost as a specific for hemorrhagic septicemia. A correct diagnosis and the aid of the vaccine and an outbreak of hemorrhagic septicemia is easily stamped out.

Twice within the past six months we have had outbreaks in the State of Wyoming. The first was in a shipment of 120 head of cattle from South Saint Paul, Minnesota. They were dying the day they reached Douglas, Wyoming, and on post mortem it was found that they had hemorrhagic septicemia. Nine head had died when we inoculated them with vaccine, and we only lost one more, which was sick and down when we vaccinated. The second outbreak was at Thermopolis, Wyoming. This occurred on four different ranches in the same neighboring livestock from one state into another. I believe this would be a step hood. There had been some sixty head died and we lost only one more after vaccination.

A change of feeding grounds, burning or burying of all dead animals, and thorough disinfection of corrals and feed lots are necessary. The sick and the healthy animals should also be separated.

At the United States Live Stock Sanitary Association meeting in Chicago last December, Dr. A. T. Kinsley read a very interesting paper on hemorrhagic septicemia, and in the discussion that followed there were

some very interesting points brought out in reference to the way hemorrhagic septicemia is distributed. It seems that a great many of our larger stockyards are infected with the bacillus bovisepticus, and stock cattle yarded in these places become infected before they are shipped. After thorough cleaning and disinfecting of these yards on account of foot-and-mouth disease it was something like three months before they heard of any new outbreaks of hemorrhagic septicemia as originating from their yards. It occurs to me that it would be a very good thing if all of the largest stockyards companies were compelled to clean and disinfect yards every three or four months. I am of the opinion that it would not only help to stop the spread of hemorrhagic septicemia, but all other infectious and contagious diseases. In my opinion the time is not far distant when the different transportation companies will be compelled to clean and disinfect all cars before transportin the right direction and would do more good to stop the spread of infection than any sanitary law or regulation a state can make. Infected yards and cars can spread disease after stock have had a thorough inspection, and in shipping from river points the stock just have time to become ill by the time they land at destination in our western country. There was talk last summer of closing the stockyards at Kansas City on account of the spread of hemorrhagic septicemia from that point.

In conclusion, let me repeat that in handling outbreaks of this disease a thorough cleaning of corrals, barnyards, buildings, and thorough disinfecting of litter or bedding with which the sick animals have come in contact, separating the sick and well animals, change of feed lots or pastures, are all factors which should not be forgotten.

DISCUSSION

Dr. Jennings detailed two outbreaks of this disease which occurred in New Mexico. In both cases the cattle had been shipped from the Kansas City stockyards. It appeared to be the concensus of opinion that most of our cases were those that had come through public yards.

QUESTION BOX.

Dr. F. W. Culver—I was called to see a bunch of horses that had been in a corral over night. Two of them were dead, and the owner had noticed no symptoms, finding them dead when he first visited the corrals in the morning. They had been eating alfalfa hay. Post mortem revealed a considerable amount of abdominal fluid with bowels gangrenous. What was the difficulty? The question created some discussion but there was no answer.

Dr. A. G. Fisk—I had under my charge seventy-eight head of mules that had been fed for thirty days at a certain place. From these twenty head were separated and driven forty miles in about twelve hours. At the end of the drive one mule died and another seemed greatly depressed, in fact, was in a comatose state. Repeated doses of strychnine seemed to give no results. Three grains were finally administered hypodermically soon after which this mule died. What was the trouble? It seemed to be the opinion of the members present that these two cases represented forage poisoning of cerebro-spinal meningitis, although no one could give the cause of the illness.

Dr. T. H. Brady—A herd of 125 head of cattle was driven across the range when finally three of the animals were noticed to be dead. The symptoms were stupor and coma and death occurred very rapidly. In all

sixty head were lost within a few hours. Thorough examination revealed no poisonous weeds and no special lesions. The stomachs were filled with buffalo grass. The animals had been driven slowly. Sheep were pastured on this range both before and after this loss without difficulty. It was suggested that hemorrhagic septicemia might have been the cause of death.

CLINIC

In Charge of Dr. H. E. Kingman.

Case No. I.—Bay gelding, seven years old. Shoulder tumor. History, several months' standing. Operator, H. E. Kingman. Tumor excised under local anaesthesia produced by cocaine five per cent. Healing by first intention.

Case No. II.—Double Ridgeling, Black, three years old. Operator, A. B. McCapes. Uneventful recovery.

Case No. III.—Black gelding, eight years old. Thickening of septum nasi, anterior third. Operator, N. J. Miller. Operation—Opening made through false nostril. Dyspnoea partially relieved. Horse returned to work. Result satisfactory to owner.

Case No. IV.—Pig, scrotol hernia. Operator, Hugh Hurst. White's operation. Uneventful recovery.

Case No. V.—Jersey cow, five years old. Diagnosis by Dr. A. A. Hermann. Granular Vaginitis. Autogenous bacteria administered. No improvement.

Case No. VI.—Brown gelding, ten years old. Diagnosis rachitic ringbone on both front feet. Operator, A. G. Fisk. Point firing. No report of result.

Case No. VII.—Brown Ridgeling ,unilateral, six years old. Operator, A. B. McCapes. Uneventful recovery.

Case No. VIII.—Boston bull terrier, four years old. Bitch. Case of Dr. A. A. Hermann. Diagnosis bone lodged in lower cervical portion of oesophagus by means of X-ray. Diagnostician, H. E. Kingman. Removal of bone was followed by recovery.

Case No. IX.—Brown mare, four years old. One split ear. Operator, H. E. Kingman. Sutured with silk and dressed with gum mastic to hold in place. Recovery by second intention and complete.

Case No. X.—Gray gelding, ten years old. Thickening of nasal septum. Septum removed by N. J. Miller. No improvement.

Case No. XI.—Airedale terrier. Demodecic mange. Case of H. S. Eakins. Iodine and glycerine. Recovery with loss of some hair.

Case No. XII.—Bitch. Ovariotomy. Operator, H. E. Kingman. Recovery.

Case No. XIII.—Gray gelding, aged. Thrush. F. W. Culver. Calomel prescribed. Horse destroyed as he was considered incurable.

Case No. XIV.—Bay gelding, five years old. Shoulder atrophy. Operator, A. M. Sevey. Iodine injected subcutaneously. Followed by recovery.

Case No. XV.—Sorrel gelding, ten years old. Low periarticular ringbone. Operator, H. E. Kingman. Digital neurotomy. No report.

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PROCEEDINGS FOR THE YEAR

1917

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COLORADO VETERINARY MEDICAL ASSOCIATION

EDITED BY THE SECRETARY

FOURTEENTH ANNUAL
MEETING
AT DENVER, THURSDAY, JANUARY 25

FIFTEENTH SEMI-ANNUAL
MEETING
AT FORT COLLINS
THURSDAY AND FRIDAY
MAY 31 AND JUNE 1

OFFICERS FOR 1917

R. H. BIRD, Greeley.....President
GEO. H. GLOVER, Fort Collins.....1st Vice President
J. B. BRYANT, Trinidad.....2nd Vice President
I. E. NEWSOM, Fort Collins.....Secretary-Treasurer

EXECUTIVE BOARD

A. J. SAVAGE, Colorado Springs J. F. MEINZER, La Jara
F. W. CULVER, Longmont

MEMBERS

V. J. Ayres.....Sterling
A. G. Brocker..Steamboat Springs
R. H. Bird.....Greeley
Stewart W. Beggs.....Wiley
T. H. Brady .....Lamar
John B. Bryant.....Trinidad
Garry E. Clark.....Fowler
John H. Copenhaver.Omaha, Neb.
Chas. W. Converse....Franktown
F. W. Culver.....Longmont
A. N. Carroll.....Pueblo
Floyd Cross.....Fort Collins
G. D. Dickey....Colorado Springs
Andrew J. Dickman.....Salida
M. J. Dunleavy.....Denver
L. R. Dillon.....Pueblo
A. P. Drew.....Grand Junction
H. S. Eakins.....Fort Collins
A. G. Fisk.....Trinidad
Geo. H. Glover.....Fort Collins
Fred Gilgen.....Eaton
A. H. Griffiths.....Montrose
P. C. Guyselman.....Montrose
F. D. Hylton.....Longmont
A. A. Herman.....Littleton
A. P. Immenschuh..Monte Vista
W. H. Johnson.....Denver
C. L. Jones.....Delta
H. E. Kingman.....Fort Collins
Percy Lamb.....Denver
Chas. G. Lamb.....Denver
Cecil P. Lamb.....Brush
R. N. McCarroll.....Fort Collins
J. F. Meinzer.....La Jara
A. B. McCapes.....Boulder
N. J. Miller.....Johnstown
L. G. McClain.....Manzanola
H. V. McCullah.....Fort Lupton
O. B. Morgan.....Rocky Ford
I. E. Newsom.....Fort Collins
John D. Paxton.....Lamar
D. C. Patterson.....Sterling
Otis Perrin.....Wellington
Irving A. Phinney.....Loveland
Geo. L. Richards.....Ordway
Thos. Rimmer..Colorado Springs
A. J. Savage....Colorado Springs
Wm. Schumacher.....Durango
A. M. Sevey.....Brighton
Chas. C. Stewart.Colorado Springs
Thos. N. Slayton.....Greeley
R. C. Swallow.....Fort Morgan
E. E. Tobin.....Greeley
A. W. Whitehouse...Fort Collins
M. J. Woodliffe.....Denver
A. G. Wadleigh.....La Junta
F. B. Wilson.....Collbran
H. J. Waller.....Canon City
M. J. Warner.....Johnstown
Ira Watts.....Timnath
W. W. Yard.....Denver

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ANNUAL MEETING

DENVER, COLO., JANUARY 25, 1917

BUSINESS MEETING

The meeting was called to order at 10:45 A. M. by Geo. H. Glover.

In the absence of the President and both Vice Presidents, Dr. Robert Bird of Greeley was called to the chair.

In the absence of the Secretary, Dr. Geo. H. Glover was named temporary Secretary. For minutes of the previous meeting the members were referred to the published proceedings of the association.

The Secretary-Treasurer's report was read as follows:

SECRETARY'S REPORT

To The Colorado Veterinary Medical Association:

There are at present fifty-three members carried on the rolls. It is unfortunate that a few men who are eligible to membership are satisfied to reside within our State and yet not apply for membership in this organization. I assure you that in every such instance there has been plenty of opportunity furnished by the Secretary, but apparently in many instances without satisfactory results. I would urge all of you who know of such men, that you encourage them to become members. Our membership is too small to do the work which we as an association should do, and as a consequence we need every eligible man within the fold.

Agreeable to your instructions, your Secretary sent out a circular letter asking each member to contribute $1.00 to the Salmon Memorial Fund. The result has been very disappointing as up to date only four men have responded, giving a total in this fund of only $5.

In making up the program it is often desirable to obtain some man of repute. Many of these men are available if only their expenses could be guaranteed, but with the present condition of the treasury your Secretary does not feel warranted in asking such men to appear before us.

We have been especially unfortunate during the past year in that we have lost by death our Second Vice President, Dr. T. H. Quinn, who died in Cheyenne August 1. A committee should be appointed and resolutions drawn.

Respectfully submitted,

I. E. NEWSOM.

REPORT OF THE TREASURER

From May 29, 1916, to January 23, 1917.

FINANCIAL REPORT

Receipts

Balance on hand May 29, 1916	$ 88.97
Received from dues	20.00
	$108.97

Expenses

June 1, 1916—Cigars	$ 3.50
June 1, 1916—Lunch	18.75
Oct. 14, 1916—Printing proceedings	40.00
Oct. 14, 1916—Stamps	3.00
Oct. 14, 1916—Printing cards	1.50
Oct. 14, 1916—Envelopes	.80
Dec. 15, 1916—Secretary's salary	20.00
Jan. 13, 1917—Stamps	2.00
	$ 89.55
Balance on hand January 23, 1917	$ 19.42

The following were elected members: Floyd Cross, Fort Collins; H. S. Eakins, Fort Collins; John H. Copenhaver, Denver; A. Philip Immenschuh, Monte Vista; Carrel L. Jones, Delta; Garrey E. Clark, Fowler. The application of Dr. F. H. Pearce of Boulder not having the required vouchers was laid over until the next meeting.

Dr. Chas. G. Lamb, a member of the Committee on Legislation, reported that there had been no meeting of the committee, but personally as a member, he sought an expression of the members on a bill which he contemplated introducing in the legislature. The bill was read and explained, followed by discussion. Approved and committee discharged.

Moved by Dr. Glover that another Committee on Legislation, consisting of three members, be appointed by the chair. Carried. The following were named: Chas. G. Lamb, Chairman; Geo. H. Glover and W. W. Yard.

Dr. John Bryant of Trinidad introduced the following resolution:

Whereas, Some of the State Colleges have been giving Short Courses for Veterinary Practitioners and these have been found very successful;

Therefore, Be It Resolved, That the Colorado Veterinary Medical Association respectfully petition the authorities at the State Agricultural College to arrange for such a course.

After considerable discussion, the resolution was adopted unanimously. It was moved that Dr. Glover be appointed as a committee of one to present this matter to the college authorities and report at the next meeting. Carried.

The following were elected officers for the ensuing year: President, Dr. Robert Bird; First Vice President, Geo. H. Glover; Second Vice President, John Bryant; Secretary-Treasurer, I. E. Newsom; Executive Board, A. J. Savage; J. F. Meinzer, F. W. Culver.

PROGRAM

Coitus Interuptus ..... F. W. Culver
Suggestions for Betterment of the Association ..... A. G. Fisk
The Ethics of the Profession of Veterinary Medicine .... Prof. C. F. Davis
Vesicular Stomatitis ..... J. F. Meinzer
The Whorled Milkweed as a Poisonous Plant ..... Geo. H. Glover
Dr. Potter gave an interesting talk on Contagious Abortion.

PAPERS

SUGGESTIONS FOR THE BETTERMENT OF THE ASSOCIATION

(A. G. Fisk)

Gentlemen:

For a considerable time I have been thinking over the situation, in which it seems to me we find ourselves as an association. Following the usual custom the Secretary sent us each a card giving the time and place of this meeting some time ago. When I received mine I suppose I did as a lot of the rest of us did and said to myself that I could not get up anything for the meeting and let it go at that. Later, however, I happened to see a letter from Dr. Newsom to a mutual friend asking him for a special paper and stating that he was very short of material for the program. This put me to thinking some more and as a result I decided to try to do something just to help out so I wrote the Secretary that I would give a paper on wounds. This I attempted to do but after a lot of floundering about I came to the conclusion (as I should have done a long time ago) that I was not qualified by nature nor education to write technical papers worthy of presentation before an organization such as this. It seems to me that to be of real value to this or any similar organization, papers should be the product of wide professional learning and experience. Experience, not only in the practice of the subject, but in the telling, before a critical audience, of that learning and practice possessed by the essayest. These qualifications I do not possess; therefore, I have resolved henceforth, to refrain from attempts along technical lines. So instead of tackling a subject coming under that head I have attempted to outline a few of my impressions relative to association work in general and our own in particular, and though my technique may be crude and the result of this effort be more of a bore to you than a benefit I hope I may pass on something of the good I received out of a recent very pleasant experience which I shall try to relate to you in a moment or two, and which was right along the lines of my cogitations for the past few months.

The object of the association as you know is advancement of the profession and advancement of its members.

A full membership, co-operation of the members and literary programs that command attention are to me the three factors of first importance. LET ME REPEAT—First, membership; second, co-operation, and third, programs; are to my mind paramount issues. The question is do we make of these real issues? Have we not failed to direct our attention to the membership problem in a systematic manner, and to co-operation with all it represents, and to the getting up of good programs with their unlimited possibilities? Consider our membership—has it increased in the last four years in proportion to the increase of the number of veterinarians in the state. I refer to active working members, of course, for I believe we do have an enrollment up to a pretty fair average but this is in numbers only. Take the number here today out of an eligible list of 54 and is the attendance indicative of exuberant interest in association matters?

Look back a few years to the time when our winter meeting consumed two days and was helped out and made more enjoyable by a good

banquet. Do you remember when the banquet was cut out? Then when we cut the time for the meeting to one day? These things were done and gentlemen they did not mark advancement nor has our general record in other lines been much better. The summer meeting was the excuse for some of the changes in the winter meeting, but I believe the change was wrong and that the general attitude of the association as a whole proves my opinion to be correct. This is the business meeting and should be the one to which the largest number of veterinarians would come, both because of the other attractions in Denver at this time and because of the time of year. The summer meeting is of extreme value but along strictly different lines. I am not knocking the summer meeting but I am talking for this our most important meeting. Important for too many reasons and too obvious reasons to allow or need of enumeration.

Take the matter of co-operation. What have we done in the way of securing needed legislation, in collecting data relative to disease and its control, and what member of this organization has been materially benefited in his locality by being a member of this organization?

I am not knocking when I answer these questions in the negative. But I believe I know why we have to make a negative answer to them. The reason is this: We have neglected the third and last point I mentioned as an issue. The question of programs, which in my opinion are the cornerstone of the structure, the association. I don't say that we have neglected them wilfully or intentionally, but our habit of "passing the buck" usually to the Secretary has resulted in giving him too much to do and then practically expecting him to do it alone and without any noticeable amount of money to help him along.

In contrast let me read the program of the December meeting of the Nebraska Association, which I had the pleasure and profit of attending.

(Read program.)

In addition to the eyeopener this meeting proved to be to me there was a little incident in connection with the meeting that illustrated another point I wish to call to your attention. It was this: Among several stockmen and other outsiders present at this meeting there was a man who went with me from Minden and on the same invitation upon which I went. After our day at the meeting was over and we were on our way to Minden he expressed himself about as follows: "Well, Doc., I must say that I did not think you fellows would average up quite so high; I believe you know more than the average M. D., anyway I know you know more than the usual run of country doctors. I have never had much use for veterinarians but I am going to tell some of those farmer friends a thing or two when I get home and I believe I can get five dollars worth of good by just having a vet come and talk to me once in a while and I am going to do it."

Of course you say that was a friend talking to you; but I say that my friend could not have simulated his apparent interest for about seven consecutive hours if he had not really gotten a lot of actual pleasure out of the meeting. He was interested and deeply so, and the thing I want to call your attention to here is that he gave every vet. there who had sense enough to keep still or did know enough to take an intelligent part in the discussions credit for being in the same class as Kinsley and Brown.

Isn't there a suggestion for us in that stockman's remarks? Did

not the Nebraska veterinarians get a lot of mighty valuable reflective glory out of that meeting? And couldn't we stand a little such credit from among the stockmen of this state?

Now gentlemen—what I have said and what I shall say in closing is not intended to belittle the efforts of any member, past, present or future, in contributing to our programs. But it did seem to me that there were mighty valuable suggestions in the incidents I have mentioned, for us and I do not believe any one will misconstrue my meaning nor take offence at my effort to boost our association farther ahead of where we must admit it is today. The main reason I attended that meeting was in the hope of getting some idea of value to us. I got them alright but whether I have given them to you is for you to say. I have tried and if I have failed for lack of ability not only in writing technical papers but in transmitting my thoughts on any subject to my hearers. We have men in our association who can do this kind of work perfectly and there are plenty of men outside our organization, but in the profession that we can get to help them to make our programs a success from every angle.

Perhaps a little discussion and a lot of thought will clear up some of the points I have tried to make but failed to bring out, and if my suggestions are untimely and my impressions in regard to ourselves as an association are wrong I know you will correct me and I believe you know I will be as willing to work on others' suggestions as well as on my own.

VESICULAR STOMATITIS

(J. F. Meinzer.)

Vesicular Stomatitis is an acute inflammatory disease of the buccal membrane, characterized by the formation of vesicles upon the mucous membrane lining the oral cavity, running a benign course, terminating in recovery in two or three weeks. It usually affects horses, cattle and sheep. Horses being the most commonly affected.

Up until the time of the late outbreak of the foot and mouth disease, we seldom heard of this disease, and when we did see it, we paid very little attention to it. However, the wide publicity given the foot and mouth disease in the daily papers of the country, has served to make every farmer and stockman very suspicious of any disease in his stock that shows any salivation or sore mouth.

During the past year I have received many calls and made trips 75 to 100 miles to see cases of this kind, that before the foot and mouth disease outbreak they would have thought nothing of.

During the last summer and fall in the San Luis Valley, we have had quite an extensive outbreak of this disease, and it spread so rapidly and appeared in so many different localities that it was hard to make the people believe but that it was at least something similar, if not the foot and mouth disease.

History: It is an old disease of this country, having been described by some of the early writers of Animal Diseases.

Cause: It is probably caused by a fungus entering in pre[illegible]s abrasions. In some cases by a secondary infection of necrophorus bacillus, which will make the case run a much longer course.

Symptoms: The first and only constant symptoms are that the animal is unable to eat and looks gaunted. An examination of the mouth, in early stages will reveal vesicles from the size of a pin head to the size of a dime on the tongues, cheeks and lips, and if the disease is well advanced, the whole mucous membrane on the upper side of tongue may be sloughed off, back six or eight inches from the end of the tongue. The tongue and lips are swollen and sore and very painful to the touch.

In the horse the pulse, respiration and temperature are about normal, some times a slight elevation of temperature. The animals do not appear to be sick, except for the fact that they cannot eat and look thin.

In the cow there is some elevation of temperature and more evidence of a general systemic disturbance, also in many cases there appear vesicles and little ulcers, upon the udder and teats, which are very painful and in cases where cows are giving milk it is almost impossible to milk them. The milk flow is greatly diminished and in some cases it will be completely stopped, even if the cow recovers. Dairy type of cattle seem to be more susceptible to the disease than range stock.

In one instance, on a mountain ranch, where there were fourteen dairy cows, they all took it and three died. They were running with range cattle every day and only a few of the range cattle had the disease and those in a mild form. In one instance I was called to see a horse that they were sure had the foot and mouth disease and in a few hours the news had spread over the town and caused quite a scare. When I arrived and examined the horse I found he did have a foot disease and a mouth disease. He had a bad case of Scratches and Grease Heel along with the Stomatitis.

The saliva is quite highly infectious and is the principle mode of infecting other animals. In one instance it was carried by one horse that was practically well, to a bunch of saddle horses, to a cattle camp in the mountains seventy miles away.

Treatment: I tried several different mouth washes, but what seemed the best, was to wash the mouth once daily with a solution of Potassium Permangnate, which seems to bring about recovery much quicker than those not treated.

NECROBACILLOSIS IN PIGS

(J. F. Meinzer.)

During the past four or five years there has been a certain amount of Necrobacillosis or sore mouth disease in little pigs scattered pretty well all over the San Luis Valley. The past year it has increased to such an extent that in my section alone we have lost about 3,000 little pigs with the disease, causing for the year a loss much greater than that of cholera.

It is caused by the Bacillus Necrophorus and starts in any previous abrasion of the mucous membrane, causing a little ulcer, which will not heal, but gradually spreads until it causes a large swollen sore jaw and the pig dies.

It affects mostly little suckling pigs, but in some instances pigs up to 50 or 60 pounds will take it.

Owing to the fact that the causative factor is found, normally in hogs mouths and around all hog pens, it is almost impossible to stop the disease once it starts in a bunch of little pigs.

I have tried a good many different drugs in the way of dips and mouth washes, but they seem to be of little avail, when once the disease gets a start.

However, the man who keeps his hogs in dirty, filthy pens is usually the one to suffer most and the man who keeps his hogs in a decent, sanitary condition and dips them every two or three weeks, seldom has the disease.

THE WHORLED MILKWEED

(Asclepias verticillata)

(Geo. H. Glover)

Climatic and other conditions prevailing in the semi-arid states are extremely favorable for the live stock industry. Unhampered by frequent visitations of animal scourges, the infrequency of severe storms, water from pure mountain streams and the most nutritious of native grasses, the live stock business under range conditions, is a comparatively safe, and generally a profitable business.

The open range conditions largely prevail in the mountainous districts, and the summer grazing and winter feeding of livestock represents an industry that is destined to be permanent in these states.

Of the untoward conditions which hamper this industry in Colorado, that of poisonous plants has the greatest economic significance.

According to the last census report, the total valuation of livestock in Colorado was $132,660,000. Figuring the usual loss from preventable diseases at 5 per cent we have the astonishing figure of $6,600,000, of which $1,500,000 can safely be attributed to poisonous plants.

The value of the animals actually killed by eating poisonous plants does not near represent the aggregate loss to the range stockmen. There is the loss of a few animals, which is the common experience, and the injury to many; the failure to breed and put on flesh, a protracted condition of unthriftiness, which may or may not, be followed by cachexia and death. Poisonous plants are often aggressive in the struggle for possession of the land, thus supplanting the native grasses. Again many otherwise valuable ranges are depreciated in value almost one hundred per cent because of being infested with poisonous plants.

A considerable proportion of the practice of the western veterinarian has to do with cases of poisoning and most of this occasioned by less than a dozen well known poison weeds, and no doubt a few more that are as yet unsuspected or merely classed as suspicious. Every practicing veterinarian should be able to identify these plants and should be familiar with the symptoms of poisoning which they produce.

The poisonous plants found growing on the mountains and plains of Colorado, named in the order of their supposed importance are as follows: Varieties of "Loco" weeds (Argallia and Astragali), Larkspur (Delphinium), Water Hemlock (Cicuta), Death Camas (Zygadenus), Monkshood

(Aconitum), Wild Bean (Lupinus). These have constituted a group that have been looked upon as the principal poisonous plants of Colorado. In a secondary group we may place: The prussic acid poisoning group; cane, kafir corn, Johnson grass, cherry and others; White Hellebore (Veratrum), Poison Oak (Rhus), Swamp Laurel (Kalmia), Night Shade (Solanium), Sneezeweed (Helenium and Duagalwia), Scouring Rush (Equisetum) and Ergot (Claviceps). There are a few others that have been looked upon with suspicion, such as, Brake-fern (Pteridium), Scrub Oak (Quercus), Greasewood (Sarcobatus), Cow Cockle (Saponaria), Buckbean (Thermopsis), Snow-on-the-mountain (Euphorbia), False Mallow (Malvastrum), Dogbane (Apocynum), Black Henbane (Hyoscyamus), Jimson Weed (Datura), Sage (Artemisis), Cocklebur (Xanthium) and Milkweed (Asclepias). Some of the last group are known to be poisonous but have very little practical significance as poisonous plants.

It is not my intention to discuss at this time the condition under which animals are poisoned, but rather to consider the one particular poisonous plant under consideration, and briefly its congeners.

Milkweed (Asclepias)

The milkweeds, as a group, are quite well known. All of them are regarded with suspicion by stockmen, and in some cases at least, this suspicion is justified. All plants with a milky juice are not "milkweeds," that is, of the group known botanically as "Asclepias." For example, prickly lettuce, sow thistle and prickly poppy all have a milky juice, yet are not true milkweeds. The three above mentioned have alternate leaves, while the true milkweeds have opposite leaves.

There are many species of true milkweeds within our borders. All are herbs, with opposite leaves (rarely alternate), or sometimes several at a joint on the stem. The leaves and stems are often somewhat wooly, sometimes smooth. The flowers are in umbels, pink, purplish, or white in color, and peculiar in shape. The fruit is a pod which splits open at maturity allowing numerous seeds to come out, each of which has a silky tuft of hairs at the end.

The most common milkweed in our section is the showy milkweed (Asclepias speciosa). It is perennial 2 to 5 feet high with large, opposite leaves, and purplish flowers in spherical, terminal clusters. It grows in good, rather moist soil on plains and in foothills throughout the State.

The low milkweed (Asclepias pumila) is 2 to 15 inches tall, and grows from a woody root. The leaves are very narrow and crowded on the stem. The pods are long, slender and much smaller than those in the preceding species. It prefers dry, sandy soil. It is most common at low altitudes.

The whorled milkweed (Asclepias verticillata) is a leafy plant, 1 to 2½ feet high. The long, narrow leaves are several at a joint of the stem. It grows on dry plains.

There are several so-called green milkweeds in Colorado, the chief one being the green-flowered (Acerates viridiflora). It is a plains plant.

Poisoning by milkweeds.—Many of these plants have an acrid juice. The showy milkweed is said to be poisonous. It contains asclepion.

The Whorled Milkweed . .

The whorled milkweed (Asclepias verticillata), sometimes called green milkweed, grows extensively along river bottoms and native meadows of Colorado. It is frequently seen growing luxuriously on ditch banks. All of the reported cases of supposed poisoning from the whorled milkweed have come from the southwestern portion of the State. In turning to my files, I find the following report, that was made on this plant more than a year ago:

Test of Toxic Properties of Green Milkweed.

(Asclepias Verticillata).

Received from Olathe, Colorado, Sept. 14, 1915.

Sept. 16. Three rabbits were placed in a pen and fed nothing but milkweed, after being kept in said pen for three days it was found that they refused to eat the plant and were returned to normal food.

Sept. 19. Leaves and stems broken into fragments were placed in 18 grams each of three different flasks, to which were added, to first 500 c. c. of water containing .5 per cent hydrochloric acid, 500 c. c. alcohol, was added to the second and the same amount of glycerine to the third.

Sept. 23. Filtered contents of three flasks mentioned above. Evaporated the filtrate of the flasks to which alcohol and water had been added, from 500 to 100 c. c.

Sept. 28. Gave rabbit in pen No. 15, 5 c. c. of alcoholic extract subcutaneously. Rabbit in pen No. 14, 5 c. c. of water extract subcutaneously. Rabbit in pen No. 17, 10 c. c. of glycerine extract per orem. Rabbit in pen No. 16, 10 c. c. of water extract per orem. These rabbits were given this amount at about 2:30 o'clock in the afternoon.

Sept. 30. No ill results noted in rabbits from above doses.

Gave rabbit in pen No. 16, 20 c. c. of water extract intraperitonealy. Gave rabbit in pen No. 17, 10 c. c. of alcoholic extract intraperitonealy. In five minutes animal was in state of tremor, presumbaly from effect of alcohol in the extract.

Gave rabbit in pen No. 14, 30 c. c. of watery extract intraperitonealy. Gave rabbit No. 15, 20 c. c. of alcoholic extract intraperitonealy. Two hours later rabbit in pen No. 15 was in a comatose state. Pen No. 17 rabbit dull but not comatose. Rabbits 14 and 16 normal. The symptoms manifested in rabbits 15 and 17 attributed to effects of alcohol in the extract.

October 4, 1915. Evaporated the alcoholic and watery extracts to dryness and then redissolved the residue of the former in 5 c. c. of alcohol and that of the latter in 5 c. c. of water. Gave the whole of alcohol extract to rabbit in pen 15, the whole of the water extract to rabbit in pen No. 16. No ill results noticed.

Conclusions:

1. The Green Milkweed has foliage somewhat resembling the rubber plant (Hymenoxys floribunda) and has been incorrectly called rubber weed.

2. This plant has been looked upon with suspicion because several of its near relatives, in the milkweed family, are known to be poisonous.

3. Some plants are poisonous when eaten green but not poisonous in the dry state; ex., Kafir corn, cane, Johnson grass, wild cherry under certain conditions.

4. Poisonous qualities have not been found in Green Milkweed in the dry state.

5. The fact that the plant was positively refused by rabbits and that no poison has been found in it, in a dry state, warrants us in concluding that the green plant is probably not poisonous and that the animals in question probably died from some other cause.

On the other hand circumstantial evidence favoring the toxicity of the whorled milkweed continues to accumulate. Dr. A. P. Drew of Grand Junction reported the poisoning of cattle by this plant under circumstances which were all but conclusive. Reports of poisoning were received from Montrose, Grand River, San Luis Valley and Mancos. The strongest evidence probably came from Mancos, where nearly half a flock of eleven hundred sheep, that were driven in from the range, died in twenty-four hours, with symptoms of acute poisoning. Mancos being in a remote district of the southwestern part of the State, the services of a veterinarian were not available and we have no reliable report of symptoms or post mortem findings. The stomach contents of one sheep were sent to the College and seeds of the whorled milkweed were found in sufficient numbers to indicate that this sheep at least had eaten very little, or nothing, but the plant in question.

In all cases reported at this office resulted from eating the dry plants in the fall and winter months. The evidence is not conclusive in the absence of scientific investigation, but we feel that it is strong enough to warrant us in strongly suspecting that the whorled milkweed may be a very dangerous poison weed for sheep and cattle.

THE ETHICS OF THE PROFESSION OF VETERINARY MEDICINE

(C. F. Davis, Prof. of Veterinary Jurisprudence,
Colorado Agricultural College.)

To determine the proper attitude of man towards his creator forms the field for religious science. To determine his proper relations with his fellow men is the object of ethics.

Until men had made sufficient advancement in social grouping to begin to realize a conflict of interests there could not have arisen in their minds the question of what they ought or ought not to do with regard to those about them.

When, however, in their struggle for food or shelter, in their efforts to satisfy any desire, they found others endeavoring to secure the same things for which they themselves were striving there would of necessity arise the question of what they ought to do.

Whenever that question of ought, the question of what is right conduct between men is raised, men find themselves in the field of ethics.

her back and lowing loudly, at intervals she would become much excited, charge the other cows viciously, and fall to the ground exhausted. The owner finally succeeded in driving her into the barn. A Mexican stopped at the barn to look at her and so furious was she that she charged through a door at him. She was returned to the barn and so sensitive was she to light and sound that the owner had difficulty in obtaining a shot at her.

Case No. 4 was an eight year old cow. I saw her after the symptoms were well developed. Whether standing or walking she constantly endeavored to defecate and urinate without any success. The lumen of the rectum and anus remained excessively dilated. After straining large amounts of air rushed into the rectum only to be expelled with a loud noise at the next effort. Tenesmus was constant until she was destroyed the following day. Other symptoms were: a sudden cessation of lactation, and rumination and very strange to say a less aggressive disposition. The period of incubation in this case was a little over sixty days.

Case No. 5 was a three month old heifer calf. This was the first case to show evidence of pruritus. Several days before marked symptoms appeared the owner noticed that it would bite one hind leg and then turn suddenly and bite the other. The next symptom to appear was loud bellowing. It was amazing to hear a three month old calf bellow as loud as a bull. Saliva drooled from the mouth in large amounts, the calf was very irritable and vicious. There were pronounced spasms of various groups of muscles. In a day or two the calf became paralyzed and died in convulsions. The period of incubation was about seventy days.

Case No. 6 developed symptoms over two weeks before death; first there appeared a vaginal discharge closely followed by all the appearance of heat. The owner wished me to treat this condition but I refused through fear of rabies. This symptom of heat persisted until her death. She gradually lost flesh and strength, she gradually lost control of her hind extremities. She ate and drank sparingly until within two or three days of death. We destroyed her because she became so weak she could not rise. The period of incubation was about seventy-five days.

A neighbor living a block away lost two calves with the disease about this time. The infection was evidently due to a bite from the same dog. One calf was paralyzed from the beginning, there occurred spasmodic contraction of the muscles of one side of the neck, causing the head to be held toward that side. There was also spasmodic contraction of the diaphragm as evidenced by what the dairymen call "thumps." The other calf stood up continually, seldom moving from its tracks. It salivated so freely that the floor about it was covered with white foam.

About Feb. 8, a small dog was seen chasing the calves on a large dairy near town, it also played with the little daughter of the proprietor. I heard of the incident and called the proprietor over the phone and advised him to kill any stray dog that came to his place. After a few days the same dog appeared at another ranch and started to chase the chickens. It was shot immediately.

March 7, I had an obstetrical case at the large dairy farm. After completing this case the owner asked me to look at some sick calves. He told me that the calves had refused to drink their milk for several days and he thought that they must have indigestion. He remarked that at the outset they would drink part of their milk, but later refused it en-

tirely. There was nothing unusual in the appearance of the calves. They were not the least bit excitable, or weak; outside of refusing feed they seemed normal with the exception of one calf that had diarrhoea. This calf had been born since the dog chased the other calves. After a few days the diarrhoea ceased and the calf acted no different than the rest. The owner desired to give a purgative but I did not consider it wise as I suspected rabies. Three or four days later the same man called me up and said that he thought that the calves had diphtheria and wanted me to come out and examine them, so I took my rubber gloves and went. I quickly convinced him that there was no calf diphtheria and induced him to send the head of one to the college. Dr. Newsom reported rabies. The following Sunday I accompanied the owner to Fort Collins with one of the calves that had shown symptoms for about three days. This calf displayed more irritation than any of the other calves had hitherto shown, it was the only calf that had drooled at the mouth. As to the symptoms it displayed at the college I am not familiar, but I was told that after five or six days it became paralyzed and was killed. Shortly afterwards another calf died, within a few hours of initial symptoms. The calf drank its morning milk but shortly afterward bellowed loudly, went into convulsions and died.

All together nine calves were lost by this man, within a period of from one to two months after infection.

May 1, I was called to a ranch one mile south of town and found a two-year-old heifer displaying marked symptoms of rabies. This man had lost a dog with rabies one month previous to my visit. The owner had seen the rabid dog attempt to bite his greyhounds but he did not think that any of them had been bitten. He was not aware that the dog had bitten any cattle. The patient was making unsuccessful efforts to defecate and urinate; this symptom was constant until death. She would not attack a man nor molest the other cattle but would charge viciously at every dog and cat of which there were a goodly number. The cow's eyes were wild and staring. The pupils were dilated, she was very restless and uneasy, pawed the earth frequently and moved about almost constantly. She did not bellow or drool from the mouth, there appeared immediate signs of parturition which was not due for a month. The following day she became quite furious, she pawed the ground to a depth of three feet, she bellowed as though angry and in great pain, saliva drooled from her mouth, giving her a terrible appearance. She was destroyed on the second day after showing symptoms. Strangely no other cases have appeared on this place.

About the same time I had another case two miles north of town. This man had lost a dog one month previous. When I arrived at this place I found a small calf tied with a rope. The calf charged at me and only the shortness of the rope prevented it from butting me. The calf had occasioned considerable amusement by chasing dogs, cats and chickens about the place. The calf was two weeks old and it had been over a month since the dog died, so I do not know the source of infection.

Two weeks ago the party who had lost only two calves lost a third one. It is my opinion that this calf was bitten by the same dog that infected the others.

The period of incubation of the calves as well as the older cattle was from one to three months, and pigs two to three weeks. The period of incubation is said to be influenced by the virulence of the virus, the depth of the wound, nearness to a large nerve trunk, and the distance of the

point of infection from the central nervous system and to some extent the resistance of the patient. The bites of small animals on account of the depth of the penetration and the more prompt healing of the wound are more fatal than the bites of larger animals, as the horse. It is claimed that in bites of the face or head the period of incubation is often so brief that treatment is often of little help. This is due to the fact that the infection is known to follow along the nerve to the central nervous system.

It has been an accepted fact that unless a dog showed clinical symptoms ten days after inflicting the wound to another animal there need be no fear of rabies. Several authorities including Konradi, writing on this subject, state that a dog may infect another animal with rabies two weeks before showing clinical symptoms.

It is not likely that the infection is spread except through a bite; however, this theory is doubted by a few scientists. In the recent outbreak at Fort Lupton two calves died, of rabies, that were born two weeks after the apparent source of infection. An Italian author makes note of a case wherein cows drinking from a well in which a rabid dog had fallen became infected and died of rabies.

At the beginning of this outbreak I read a great deal of literature and it seemed to be the concensus of opinion that rabies of cattle rarely appeared in the dumb or paralytic form. About four animals out of twenty displayed the furious type at any stage. In these four the initial stage, the stage of irritation, and the stage of paralysis could be distinguished from each other fairly well.

Steffen in his "Special Cattle Therapy" states that all cases under his observation died within 24 to 48 hours from initial appearance of symptoms. Only one animal died under 24 hours, several lived 7 or 8 days before they were destroyed. The only animal known to be bitten, never developed rabies. If it is true that only 30 per cent of bitten cattle develop the disease there must have been about sixty cattle bitten. I was surprised to see no animal attempt to bite, and that drooling of saliva from the mouth was not a constant symptom. No treatment was undertaken as there was no way of telling which animals were bitten and it was inadvisable to treat a whole herd under such circumstances. There seemed to be no fear of water or true hydrophobia.

CONTAGIOUS ABORTION

(I. E. Newsom)

So much has been written in recent years on this topic, by men of national reputation, that it is with some trepidation that I attempt to present to you anything that may be worthy of your consideration. You have doubtless read the articles that have recently appeared from the pens of such men as Williams, Cotton, Eichorn, Hadley, and Schroeder and Cotton and you are cognizant of the claims of many of our noted men respecting the virtues of carbolic acid, methylene blue and vaccines in the control of the disease. My only excuse then for bringing up this subject is that the Colorado Experiment Station has felt the necessity of contributing what it could to tho mass of facts that have already beon obtained relating to this serious malady and the writer acting as its representative is

coming to you for assistance. It is the desire of the Station to request your co-operation first in getting the necessary information regarding the prevalence of the disease in the State and then in trying out such means of control as may seem desirable.

Prevalence

Many of our investigators believe the disease to be practically universal and therefore, that every herd should be looked upon as infected. Others incline to the view that the prevalence has been overestimated and that only occasional herds are affected. It makes a great deal of difference in our plans for control which of these factions is right. If it is to be looked upon as universal in its distribution then wholesale immunization would seem to be the proper procedure. If it occurs in occasional herds only then quarantine and elimination of diseased animals suggest themselves. Judging from the number of abortions reported, the disease is widely scattered over our State not only in dairy herds but among the range animals as well. We believe, however, that we should determine the prevalence not only by the number of abortions but by means of serological tests. This you can help us to do by sending in blood samples for examination. We propose to examine all blood samples sent, free of charge and for an indefinite length of time. This study will not only give us the prevalence of the disease but it will when finished add materially to the facts already collected on the reliability of the serum tests. Not less than two drams of blood should be drawn for this purpose. The vials and needles used should be sterile but absolute freedom from contamination is not essential. It will usually be sufficient to send in the blood without special preparation, but if the serum can be poured from the clot and enough carbolic acid added to make a one-half of one per cent solution it will be all the better. The needle should be washed out thoroughly between animals.

What do these tests mean? Only that the reacting cow carries antibodies for Bacillus abortus in her blood. It is not a guarantee that the cow has aborted nor that she will abort as she may have become immune without aborting. Furthermore, aborting cows may not react. Some recent figures are of interest in this connection. Turner reports 115 samples of blood drawn from a herd under his charge with only one positive reaction. This cow was purchased eight years before, had had a live calf each year since and has delivered a live calf since the test was made. I myself tested a herd of twenty-one animals in which there had been a few abortions but the only reactor I found had delivered four live calves and had never aborted.

Eichorn and Potter report that of a herd of 413 cows 120 had aborted once, fifty-eight of which gave positive reactions and fifty-four negative. Eight were questionable. It will thus be seen that the serum tests when applied to whole herds will locate infection but will not pick out the aborters. If you are to make use of these tests you should do so in full knowledge of their meaning and limitation.

Economic Importance

The U. S. Department of Agriculture has estimated that contagious abortion costs the cattle industry of the United States $20,000,000 a year. Just what part of this loss the stockmen of Colorado bear is impossible of estimation at this time. It seems reasonable to believe that

art. I will not cut a person laboring under the stone, but will leave this to be done by men who are practitioners of this work.

"Into whatever houses I enter, I will go into them for the benefit of the sick. I will abstain from every voluntary act of mischief and corruption; and, further, from the seduction of females or males, of freemen and slaves.

"Whatever in connection with my professional practice, or not in connection with it, I see or hear, in the life of men, which ought not to be spoken of abroad, I will not divulge, as reckoning that all such should be kept secret.

"While I continue to keep this oath unviolated, may it be granted to me to enjoy life, and the practice of the art respected by all men in all times. But should I trespass and violate this oath, may the reverse be my lot."

SEMI-ANNUAL MEETING

FORT COLLINS, MAY 31 AND JUNE 1

MINUTES

The Association was called to order by President Bird at 10 A. M. in the Civil and Irrigation Engineering Building of the Colorado Agricultural College. The minutes of the annual meeting were read by the Secretary and approved. The application of Dr. P. C. Guyselman of Montrose for membership was acted upon favorably.

Dr. Charles G. Lamb made the report for the committee on legislation. He stated that the bill which he contemplated introducing into the last legislature, which had for its purpose the control of hog cholera virus and serum, had not been introduced because on talking with individual members of the Association he found that they did not favor it. Under the present circumstances there is a regulation of the State Stock Inspection Board that graduate veterinarians only can use virus within the State, and this was deemed to be sufficient for the protection of the hog owners against the indiscriminate use of virus.

Dr. H. Jensen of Kansas City explained that in Missouri any one may use virus.

Dr. Glover stated that a committee on conservation of live stock consisting of Drs. Charles G. Lamb, W. E. Howe and himself had been appointed by the Governor to work in harmony with the general committee on food conservation. He hoped that the committee would be able to save a small percentage of the annual loss from poisonous plants and other diseases.

Dr. Bird believed that some regulation looking to the control of shipping fever might be promulgated by the Stock Inspection Board which would accrue to the benefit of the farmers of the State. He believed that practically all of the shipping fever as seen on the farms came from buy-

ing horses through the various sales stables, and that if this traffic could be controlled that the disease at least as it concerns the farmer could be satisfactorily handled.

Dr. Watts supported Dr. Bird in this contention, stating that it had been his experience that on practically all of the farms where the disease had made its appearance a history could be obtained of a horse recently purchased from some professional buyer.

Dr. Drew believed that water troughs and feed stables were a fruitful source for the transmission of the disease, and that no satisfactory quarantine could be established. He has had considerable experience with the disease in large grading camps and believes that vaccination will do much toward its control.

Dr. Millard stated that no hog cholera virus could be brought into the State of Wyoming, except by special permission. He believed that this regulation was justified because the disease is rare within the state, and because also there are several cases on record where virus has undoubtedly spread the disease.

Dr. Glover reporting on the feasibility of holding a summer short course at the Agricultural College stated that owing to the unsettled condtions of the country at the present time it was not deemed advisable to hold the course this summer, but that if these conditions return to normal such a course will be offered in the near future, provided there were requests from individual members to justify the procedure.

He also mentioned the possibility of obtaining the A. V. M. A. meeting at Estes Park, and hoped that each member of the Association would work toward that end.

The Secretary-Treasurer's report was presented as follows:

Number of members, 58.

FINANCIAL REPORT

January 25 to May 29, 1917

Receipts

Balance on hand January 25	$ 19.42
Received from dues, etc.	79.00
Total receipts	$ 98.42

Expenditures

January 30—C. F. Davis, expenses	$ 3.15
January 25—Janitor, Gentlemen Riding and Driving Club	2.00
January 12—Phone to Denver	.45
February 2—Robinson Printing Co., programs	4.50
March 24—Stamps	2.00
April 10—Robinson Printing Co., blanks	3.45
May 16—Robinson Printing Co., programs	4.50
May 16—Stamps	2.00
May 29—Printing post cards	2.00
May 29—Printing receipt blanks	3.50
May 29—Phone to Windsor	.25
Total expense	$ 27.80
Balance on hand May 29	$ 70.62

Dr. Bird presented a receipt for $17.50 which was the amount he had collected from the members of the Association for the Anglo-Franco-Belgian Relief Fund.

Dr. Glover announced that he had been authorized to examine veterinarians for the Army Officers Reserve Corps.

Dr. McCapes moved that the President appoint a committee of three to select the names of men to be recommended by the Association to the Governor for the Veterinary Examing Board. Seconded and carried. Drs. Brady, Lamb and Drew were appointed. They retired and after due deliberation recommended the names of Drs. G. W. Dickey, R. H. Bird and P. C. Guyselman for the consideration of the Association. Their recommendations were approved by the Association and it was ordered by vote that the Secretary with Dr. Lamb should constitute a committee to present the names to the Governor.

Dr. Lamb called attention to the work of the new stallion law. He stated that it was the policy of the Board when horses had been once licensed, and then failed for a year to be licensed, that when the next application came in the fee was applied to the missing year and not to the year for which it was presented. He believed that the veterinarians should be apprised of this condition so that they might advise their clients accordingly.

Dr. Dickey believed that the licensing of stallions should be limited to graduate veterinarians, although he stated that the present practice is to recognize nongraduates as well.

It was moved, seconded and carried that the Association invite the A. V. M. A. to hold its next meeting in Estes Park, and that we as individuals and as Association members do all in our power to attain this end.

PRESIDENT'S ADDRESS

(R. H. Bird)

We are met today under world conditions which have never before confronted us during the life of this Association. Our country has been forced to active participation in the great world war now being carried on. The veterinarian is by no means an unimportant cog in the fighting machines of the leading nations engaged and the American veterinarian will be called upon to take his allotted part in the conflict. That the veterinary service of the U. S. Army will be found up-to-date in equipment and efficiency is to be hopefully anticipated unless the experience of the past has been of no avail in rousing the authorities to an urgent sense of the requirements and utility of this branch of the service. The opportunity is now at hand for the veterinary organization of the army to prove to the nation the effective service it can render in contributing to the success of a military campaign in which horses and mules are essentials.

To veterinarians in civil life a greater incentive is given in wartime to follow our pursuits with increasing ardor to aid in the conservation of the nation's livestock and food supplies derived from that source. Let us remember that every life safeguarded of an industrial or food producing animal is a gain to the national assets. Apropos of the war it was very

unfortunate that the deliberations of the International Veterinary Conclave met in London in August, 1914, should have been disrupted by the tocsin of war. Much benefit was expected of this meeting in solving many of the problems affecting the world's livestock industry. A striking instance of the misfortune of war was here afforded when the brightest scientific veterinary intellects of the age met together in friendly converse and deliberation for the benefit of the world at large should be summoned to return to their respective home countries to become bitter enemies. By this event the international advancement of veterinary science has been greatly retarded and may probably be so for years to come.

Our own National Association will meet in a few weeks in Kansas City. This Association deserves the support of every veterinarian in the United States. It has done a great deal for the uplift and advancement of our profession both educationally and scientifically and I should strongly recommend any member of the State Association who is not already affiliated with the National one to become so without loss of time. With special reference to our professional interests in Colorado but little comment is called for. We in common with other economic interests have enjoyed blessings of peace and prosperity for many years. It is the order of things that such should change. We as a profession shall meet the situation with the same degree of fortitude that will characterize all the other professions by doing our bit in our respective spheres in preserving the life and liberty of this great nation.

VACCINATION, THE FARMER AND THE VETERINARIAN

(O. B. Morgan)

Our State Veterinarian has sent letters to every veterinarian in the State of Colorado, asking our co-operation in the control of contagious diseases. Now is the time when we should do our bit for our country, and use every possible means for the preservation of the livestock industry.

Once we were searching for cures for contagious diseases, but now we content ourselves to prevent them by successful vaccination. The last few years has brought to light some of the most valuable agents for the prevention and cure of diseases of domestic animals.

One of the first vaccines used by the stockman or farmer was Blackleg Vaccine. The farmer and stockman receives literature from the government telling all about Black-Leg, its prevention and how simple it is to prepare the powder and administer it. This is the first attempt by the stockman or farmer to use the hypodermic syringe which has served as a source of danger ever since.

The biologic producers noting the complexity in the vaccination with the government vaccine, placed upon the market a vaccine already dosed out and ready to inject with the very simple injector.

The literature accompanying the vaccine tells all about Black-Leg, how to diagnose it and other diseases; treatment, and prevention of the same. The literature being very impressive, leads the stockman and farmer to believe that they are able and capable to handle any condition that may arise, and the veterinarian's services would be a useless expense. The farmer shuns the veterinarian and does his own vaccinating

with great faith in the vaccine and himself as an operator. Everything may go well for awhile, all at once his cattle commence dying. The trouble may be blackleg or it may be some other disease. He re-vaccinates and they still continue to die. Next he tries the government Black-Leg vaccine with the same result. In three or four months he loses about fifty per cent of his cattle and his faith in the vaccine also. Now what is the trouble? It may be the vaccine was not potent, improper vaccination or some other disease killing the cattle. Was a veterinarian called in to make a diagnosis and take charge of the situation? No, the farmer possessed the necessary knowledge to handle the situation if it could be handled.

The above is a description of what has happened to a gentleman who is now one of my clients. It took an awful blow to convert him, and I do not anticipate any backsliding whatsoever.

Last spring a number of farmers turned their cattle out on pasture after they had vaccinated them. About a month later I was called to do an autopsy. Five animals had died within a week. On autopsy Black-Leg lesions were found and a diagnosis of Black-Leg was made. I was asked how could this be Black-leg when we vaccinated all of the young cattle? The answer I gave them, was that the vaccine was not potent, they failed to inject the pill, or the pill was not absorbed and probably surrounded by fibrous tissue. Before I had explained to them what might have happened, they had condemned vaccination and did not feel kindly toward our State and Government officials for recommending vaccination so highly. The explanation I gave them seemed to satisfy them and they consented to revaccinate, which I did and no more losses six days after vaccination. The product used was Pasteur's Liquid Black-Leg Vaccine, which has always given me good results.

I am doing all the vaccinating for all of these men and their other veterinary work too. Had it not been for the correction of this condition they would have probably been standing advertisements against vaccination and resulted in the loss of a number of animals that could have been saved. If any vaccine is used by men who merely know how to inject it, and they have any bad results, they are ready to condemn it, for the reason they do not understand the fundamentals of vaccination.

I know a number of stockmen who handle lots of cattle on Black-Leg infected places and do not vaccinate their cattle for they say they lose ten per cent after they vaccinate, and only a very small per cent more when they do not vaccinate.

Now the cost of vaccination by the veterinarian would be about one-half to two per cent, and save the stockman about eight percent that he would otherwise lose.

There are three kinds of dependable Black-Leg vaccine on the market: Pasteur's Liquid Black-Leg Vaccine, the Kansas Germ-Free Vaccine and the Serum Virus Vaccine. The two latter vaccines have been so highly advertised in farm papers and literature sent direct to the farmer, and prices quoted to them the same as the veterinarian, makes it look as though the producers were catering more to the laity than the veterinarian.

It seems to me that something could be done to keep all the vaccines and serums in the hands of the veterinarians where they should be to insure uniformly good results from their use.

The slogan has been "help the farmer." I think that slogan has been

detrimental to them in a number of instances when they are advised to do their own veterinary work by some big hearted fellow who is so full of knowledge that he must have some place for the overflow. Whenever a farmer is taught to use a hypodermic syringe he becomes a dangerous man to himself and his community.

Recently I was called to see an animal that at first was suffering from gastric flatulence, but when I arrived it was a ruptured stomach probably due to the hypodermics of the rapid cathartic class which caused severe pain and throwing herself on the ground. The hypodermic syringe used was the one he had been using to give the government Black-Leg Vaccine with. As to where he got the hypodermic tablets I was unable to ascertain. This is only one of the many similar cases that the country practitioner meets.

If we are to successfully combat all infectious diseases, we must keep all forms of vaccines out of the hands of the untrained, and perhaps the local veterinarian would be consulted more frequently and in this way the veterinarian could give his clients the benefit of the advancement of veterinary science.

DISCUSSION

Dr. Glover stated that the question of ethics in furnishing biological products and veterinary information to the laymen was a delicate one, but that so long as the U. S. Department of Agriculture published books for the edification of the stockmen and furnished black-leg vaccine free of charge, he could see no reason for any criticism of the state men for doing likewise.

Dr. Jensen stated that it was the policy of some commercial firms to furnish no drugs or biological products of any kind to any one but licensed veterinarians, they believing in so doing that their products would be used to much greater advantage and with less errors in administration. He stated that confining the business to veterinarians was a difficult procedure in some instances because it was not always easy to determine whether the would-be purchaser was a veterinarian or layman.

He explained fully the method of manufacture of some of the newer black-leg biological products. He said that the old black-leg vaccine was a long step in advance of any previously known method of handling the disease, but that there were certain inherent deficiencies in producing it that could not be eliminated, and that it was his belief that the newer products would entirely supplant the spore vaccine in the course of time. He said that in their examination of the dried muscle substance which is put out as a black-leg vaccine that in only a few instances did they find B. Chauveaui, but that many contaminating organisms were always present. He believed that progress in this line was due first to the Japanese, then in this country to the Kansas Agricultural Experiment Staton. The serum he stated was curative, but was not lasting, and that it would have to be followed by the use of virus in order to get an immunity of long standing. For small herds he believed that the serum and virus could be used with success, especially in highly bred animals where the expense would justify the procedure.

In making the natural aggressin or germ free filtrates a calf is inoculated with the virus. On death the blackened substance is removed, put under pressure and then the juice filtered. This

germ free substance is highly satisfactory as an immunizer but is rather expensive. The artificial aggressin therefore made by inoculating media in which there is placed muscle substance is rapidly supplanting the artificial substance. He said that the aggressin always had a bad odor but that the practitioners should not think it was spoiled on this account. He also stated that a liquid vaccine was now being put out which was much superior to the old spore vaccine, and was much less expensive than the curative serum. He did not claim a permanent immunity for any of the products but believed that a much more satisfactory immunity could be obtained by the liquid vaccine, the artificial or natural aggressin than could be obtained from the old spore vaccine.

Dr. Lamb stated that he had many reports of failures from the old vaccination, and as a consequence had recommended the new method.

Dr. Culver said that if the immunity should last for two years in ordinary cases, it would be satisfactory as after that the animal would be immune from age.

Dr. Newsom called attention to the belief which had been expressed that animals were not immune to black-leg due to age, and that in places where black-leg had been recently introduced old animals were susceptible as well as the young.

Dr. Millard detailed an experience he had had in the use of the germ free filtrate. He had vaccinated 500 head in March by the old method. On the third day eight had died, and on the fourth day seven more. By the fifth day twenty-six animals were dead. He ordered the aggressin by wire and at the time it was received there were three very sick. He administered the product to all of the animals, including the three sick. One of the sick ones died while the other two recovered. There was no further illness in the herd.

Dr. Jensen recommended the intravenous administration of serum to sick animals.

PHARMACEUTICAL SPECIALTIES

(By H. S. Eakins)

Stimulating White Liniment.

An efficient stimulating white liniment, simple in preparation and one that will "hold together," is the following.

℞

Cottonseed oil	2 oz.
Oleic acid	1 dr.
Oil of turpentine	2 oz.
Stronger ammonia	2 oz.

M. Thoroughly shake the first two ingredients together, add the third ingredient and again shake thoroughly, then add the last ingredient, and shake very thoroughly. This should be mixed in the order given, and if properly prepared will not separate on standing. A cheaper and whiter liniment can be prepared by using paraffin oil instead of the cottonseed oil. If this liniment is too severe in its action, aqua ammonia may be used instead of the stronger preparation.

Lubricant of Irish Moss.

In attempting to arrive at an efficient lubricant which is cheap, easily prepared, and one apparently not injurious to rubber, the following is suggested:

℞

Chondrus	1½	parts
Water	100	parts
Phenol	1	part

M. Soak the Irish moss over night in water, boil thirty minutes in a closed container using hot water to make up for loss by evaporation, strain thru muslin, cool, bottle, and phenolize.

Sig. This may be used as a lubricant for stomach tubes, catheters, and in cases of dystocias. A convenient way to carry this is in pint bottles.

Hand Lotion.

Every veterinarian needs a good hand lotion, adequately perfumed to mask odors. The following one is suggested:

℞

Bruised quince seed	4	oz.
Water	8	pints
Glycerine	2	pints
Alcohol	2	pints
Jockey Club perfume	2	oz.

M. Triturate quince seed, boil in water thirty minutes, macerate over night; strain thru two thicknesses of muslin, add glycerine, the alcohol, and then the perfume.

Dakin's Solution Modified.

I believe that from a practical standpoint Daufresne's technique is the one the veterinarian can use. He can buy the chlorinated lime already titered as to the available chlorine content, use Daufresne's table and method of preparation, test for alkalinity with phenolphthalein paper, and if necessary use sodium bicarbonate to reduce any alkalinity if present. This solution should be kept in tight jugs in a cool place. A churn (not a wooden churn) may be used in the mixing of the solutions.

Gum Mastic Solution.

Dr. Kingman, here, translated this idea from the German.

Equal parts of gum mastic and benzol are placed into a wide mouthed container. This is allowed to set one or two days until the gum mastic is in solution, stirring occasionally with a glass rod left in the container. The amount of benzol may vary according to the consistency desired. This preparation is used to replace adhesive tape wherever the latter is indicated. It may be used directly in wounds, and is said to protect wounds from infection by immobilizing bacteria. It is also used on operative fields, and in place of rubber gloves. It possesses great penetrating powers, penetrating with ease the pores, fissures, and sweat glands of the skin because the fats are made to go into solution. The bacteria in these parts become embedded and fixed, and their death is insured. Chloroform may be used instead of benzol to render the product more adhesive. Because of the adhesiveness muslin or gauze may be applied to increase the

support of the part. The two main actions are those of envelopment and being bactericidal.

Sterile Physiological Salt Solution 0.85 per cent NaCl.

Criticisms may be offered regarding the careless manner some veterinarians have in preparing solutions for intravenous injection. With the idea in view of finding a practical method for the quick production of a sterile solution suitable for this purpose, the following is submitted, however the practical application of this method will have to be worked out. Taege suggested the idea. By taking any kind of water, no matter how putrid, it readily may be made sterile by this process. However it is recommended that reasonable cleanliness and aseptic methods be pursued, and that boiling water be used. The preparation of the solution requires no special apparatus, but any ordinary containers may be used. It is said that this solution will remain sterile for an unlimited time when left standing uncovered.

I have taken known contaminated containers, contaminated stirring rod, and did not use aseptic precautions and have produced a sterile physiological salt solution which, insofar as bacteriological tests were concerned, remained sterile for four days. The inoculations were incubated at room temperature and at 37 degrees C.

The idea is this: HCl plus NaOH equals NaCl plus HOH. Hydrochloric acid with S. G. of 1.16 contains 31.45% absolute HCl. That with a S. G. of 1.18 contains 35.4% absolute HCl. From the above I have figured that by taking 14.9725 Gm. of hydrochloric acid with the S. G. of 1.18 or 16.854 Gm. with the S. G. 1.16, and 5.8 Gm. NaOH and 1000 mils of water that the resulting solution would be approximately 0.85% NaCl solution, or an isotonic (erroneously called a normal) salt solution. I find it necessary to titrate to the neutral point with a three per cent solution of either HCl or NaOH as the case may be, using litmus paper as an indicator. I use two containers each containing 500 mils of hot water. I place the NaOH in one, and the weighed HCl in the other. After the NaOH is in solution, I combine the solutions, and stir with a stirring rod.

BLACK LEG SERUM

(Owen Howells)

In view of the scarcity of livestock at this time and the necessity of conserving our food producing animals any marked advance made in medicine that tends to solve such problems is deserving of consideration.

Blackleg serum originated in this country at the Kansas State Agricultural College from experiments on the lines of those carried on in France. Thruout the State of Kansas there arose complaints that animals died from the result of vaccination with vaccine pellets or that they received no immunity. Last week I talked with a veterinary official of the State of Wyoming and as his case is typical I shall give you the substance of his remarks. In brief he said: I had vaccinated hundreds of cattle every year and my results had been so uniformly good that when blackleg serum was offered me I was only mildly interested as I believe in letting well enough alone. Then this spring I vaccinated 500 head and three days later they began to die. I wired for enough serum to vaccinate the

bunch but before it arrived 24 animals had died. I vaccinated the remainder and among them were three so badly affected that I decided to let them die. There were well developed tumefactions and they were unable to walk and all had a temperature higher than 106. However, as I had considerable serum left as a sort of experiment I gave it to these three animals. One died in a few hours but the other two made a rapid recovery and were worth more than the price of the serum and it is probable that a large part of the herd would have died without the treatment." The experience of this man with virus is typical of those that use the vaccine form of treatment and it was the result of such experiences that caused the experiment station to look around for an improved method of combatting the disease. They purchased vaccine from every available source and found that these ranged from samples that were absolutely inert to others that killed every experimental animal inoculated.

And as long as this form of inoculation is used the variance of virulency will obtain, due to inherent defects in the methods of manufacture. In the preparation of blackleg vaccine the tissue from affected musculature is attenuated by heating, the degree of heat varying with the attenuation desired. Bacteriology teaches us that the different strains of the same organism varies and we know that susceptibility in the same species is subject to wide variation. Therefore the carefully prepared vaccine attempts to bridge the gap between a strain of B. chauvei that is highly resistant and one of low virulency so that the product will protect the animal of high resistance and at the same time not kill those that are highly susceptible. For this reason it happens that several animals in a herd die after vaccination which means that the vaccine failed of its purpose.

But our mission is not to condemn the old method of protection against blackleg. It was a big step in advance and has served its purpose well. However, we believe that its day has passed, just as the electric light has superseded the coal oil lamp, and for the same reasons. Serum vaccination is better, more scientific, eventually cheaper to the client and it means something to the veterinarian for its administration requires the service of a trained man; in fact our company carries no one on its mailing list that is not a veterinarian, nor do we sell to the laity knowing them as such.

The methods employed at the C. S. L. Co. of Muscatine are essentially those carried on by our laboratory director when employed by the State of Kansas. The live organism in increasing doses is introduced into the blood stream of the horse. Young healthy ones are chosen. Depending upon the horse it requires from six to ten weeks to fully hyperimmunize one. The state of hyperimmunization is determined by withdrawing a sample of blood and testing it upon guinea pigs. When two cc. of the serum protects a 250 gram pig against an otherwise fatal dose of the virus the horse is ready to be bled. The blood is drawn into two quart jars and the serum that exudes from the clot (defibrination is not practiced) is filtered thru a Berkefeld filter, preserved with chloroform and bottled. Samples are taken for official tests and when these have been completed the product is ready for sale.

The literature which you have received gives directions for its use but I would like to emphasize a few points in connection with it. In order to place in your hands a product that is in every way potent and free from contamination we have gone to the point of extravagance in equipping our laboratories with the latest and best equipment that the mar-

ket affords. A steam boiler capable of generating 200 pounds of steam is kept in continual operation in order that every piece of equipment may be thoroly sterilized. The laboratories are maintained in as sterile a condition as it is possible to keep them and our serum is run thru bacterial proof filters in order that your product may be free from contamination. Then inserting a dirty needle thru a contaminated skin renders all of our precautions valueless. For this reason we ask that you use a sterile syringe and needle and that you will take all of the antiseptic precautions possible when you use the serum.

A second plea is that when you enter an infected herd use enough serum. The saving of one animal in an infected herd will more than pay for the total amount of serum used.

Use a system of identification, so that three days later when you give the virus there shall be no animal receiving virus that did not receive serum. Do not confound these pellets with those used for vaccine. This one is pure virus and will kill any animal that receives it without serum within four hours. That is why we know that the immunity is permanent.

In closing I might sum up the advantages which we claim for blackleg serum over the old method:

1. In an affected herd vaccines merely hasten the death of infected animals and does not exert its influence for days after vaccination. Blackleg serum will absolutely stop all deaths in a herd and save a large percentage of the affected animals.

2. Blackleg serum is absolutely safe. You cannot give too much nor can you start an outbreak of blackleg with it.

3. Its effects are permanent. In the fall you will not have animals die from blackleg that were vaccinated in the spring.

4. Blackleg serum as well as all of our other products are sold to veterinarians only. This means that every drop of serum from our laboratories is administered by veterinarians.

THE RECENT OUTBREAK OF RABIES AT FORT LUPTON

(H. V. McCullah)

According to recognized authorities, rabies is not a common disease of cattle. As to its prevalence in this State, I can not say. I have been told that there have been several outbreaks of rabies in the vicinity of Fort Lupton, the one previous to the recent outbreak having occurred five years ago.

February third I received a call from a city dairyman. He informed me by phone that one of his cows was acting strangely and wanted me to come to his place as soon as possible. I was unable to get there until the next morning. The owner, as a lot of truly honest and respectable men do in such cases, withheld certain facts from me which would have been of great value in diagnosing the case. He informed me that he had been compelled to kill his collie dog on the twenty-ninth of December, because his neighbors insisted that the dog had rabies. The owner did not believe that the dog had rabies but insisted that he had a sore mouth. About

six days previous to the dog's death the owner saw it bite a cow on the nose inflicting a deep ragged wound, which bled profusely. It was the owner's opinion that the dog did not bite any other cows after this date, as he remained in the house and refused to move unless forced to do so. Afterward I learned that the collie had bitten a terrier belonging to a man who lived four miles out in the country. Two weeks later the terrier died, but two days previous to his death he had bitten two pigs. In about three weeks both pigs showed illness, and died four or five days later. One pig was never vicious, its symptoms were inappetence, dullness, and a desire to burrow in the straw. It would back away from a stick. After three or four days saliva ran from the mouth, the pig became paralyzed and lay in convulsions until it was killed by the owner. The other pig showed symptoms of irritation from the beginning. If disturbed it became greatly alarmed, ran aimlessiy about the pen, fought the other pig, and grunted hoarsely. During this time saliva ran in great abundance from its mouth. The fourth day the pig became paralyzed and died. The terrier's head was taken to Denver, where it was examined by the state bacteriologist who found negri bodies in the brain.

The cow which I was called to examine was held in her stanchion. She seemed restless as though desirous of joining the rest of the herd. I experienced considerable difficulty in taking her temperature as she kicked viciously. Her temperature was one hundred two and five-tenths. The owner then told me that he had been unable to milk her for the last three milkings without restraint, although she had not previously been a kicker. Lactation had ceased almost abruptly the first day of her sickness, which was the day previous to my call. She had not eaten all of her morning's feed although occasionally she nosed it about. She drank water sparingly. We fastened a rope around her neck and released her from the stanchion. She broke away from three of us, tore down two barbed wire fences, and escaped to the pasture. With considerable difficulty we returned her to the corral and tied her securely. There was little change for two or three days, during which time she ate and drank sparingly. From the beginning she bellowed rapidly and loudly for ten or fifteen minutes at a time and at intervals half an hour. After about the third day she ceased to eat or drink entirely. The fifth day saliva commenced to flow from her mouth in small amounts. Her facial expression had changed remarkably; now she had a watchful, haunted, fearsome expression. Paralysis of the hind extremity caused her to stagger when she walked. If molested she would shake her head madly and charge, but could be driven back with a stick. She would make no effort to bite. She had lost heavily in fleesh but did not lie down to my knowledge. I destroyed her on the eighth day, and sent her head to Dr. Newsom, who later phoned me that examination showed negri bodies in the brain. From the date of the dog's death, to the appearance of clinical symptons, was thirty-five days.

Case No. 2 was a six-year old cow. She escaped from the corral at night and was found the next morning one mile from home lying dead in the river with the calf partly aborted. There is some doubt as to the cause of abortion, but probably it was due to an injury received from the rabid cow.

Case No. 3 displayed the furious type of rabies. She showed symptoms fifty-three days after death of the dog. Apparently not ailing when turned out to pasture, at 10 o'clock, she was found pawing the dirt over

In one sense what is right between men in general is right for a professional man whatever his profession. That is to say, there is no special ethics of a profession. From another point of view every walk in life, inasmuch as it establishes different sets of relations between those who follow it and those with whom they come in contact, has its own peculiar ethical code.

From this viewpoint we may justly speak of the ethics of the medical profession.

From the standpoint of philosophy it may be said that the whole code of ethics is embraced in the rule of conduct announced by Buddah, adopted by the Chinese teacher and repeated by the Christ—To do unto men as we would that they should do unto us.

But the abstract principle will not serve for the guidance of men in masses. There must be the statement of the law in concrete cases; hence men are constantly asking "what should be my conduct in this or that situation?"

Now, to arrive at a fair answer to such questions we should endeavor to discover the origin of ethical laws. Why or how have men come to look upon one course of conduct under certain circumstances as right and the opposite conduct as wrong? Why do we, the descendants of ancestors who saw no impropriety in going entirely unclothed, accept as an ethical principle the demand that all men shall be fully clothed?

There seems to be two lines of thought, each of which has been accepted as leading to the correct answer to our question. One group of thinkers reason that in his present stage of civilization man has made many experiments in many fields. That those courses of conduct which have proved to be inimical to man's efforts to satisfy his ever increasing wants have been avoided, while other courses having been of assistance have been retained and insisted upon as right. When men, having dropped their roving, pastoral habits, settled down to a more or less crude form of agriculture and began to look upon the field in which a man had placed seed and which he had protected from the destructive attacks of savage beasts and lawless men until the harvest was ready, as in some way being that man's private property, it would soon become manifest that the sense of ownership aroused an ambition to improve, to beautify and to remain upon the land. These are all social virtues which have contributed much to the progress of society and have, therefore, come to be looked upon as right.

The other group of thinkers prefer to look upon man as a creature of habit and to say that whatever men persist in doing until the habit of doing it has been formed they will continue to do and will finally come to consider the doing of it right and the omission of it wrong.

They point to the many actions, which, while they are made the subject of ethical rules cannot be said to be either advantageous to society or the reverse.

Whichever of these views we may choose to accept we will find it difficult to deny that that course of conduct which has come to be considered right between man and man is conducive of good results in that it serves as the lubricant to prevent friction in society.

One who enters upon the practice of a profession has a fivefold duty; he has his duty to himself, his duty to his profession, to his professional brethren, to those who employ him, and to society at large.

To himself he owes it that his conduct be such as to command the respect of all men. That he be recognized as one who has drunk at the fountain whence flows streams of pure wisdom.

To his profession is due that dignified attitude which will show that he harbors no thought that it requires an apology for having entered it.

The practice of veterinary medicine was for so many years given over to the blacksmith and the stable boy that people now find it difficult to believe that it has become an art requiring for its successful practice as thorough and careful preparation as that given to the practitioner whose efforts are directed to the healing of diseases to which humanity is heir.

Law, medicine and theology have long been known as the learned professions and the men who have practiced them have for centuries ranked among the leaders of thought and the patterns of right conduct in society. When the student of veterinary science essays to enter into companionship with such men on the footing of full intellectual equality he owes it to them and to himself to make himself worthy of that companionship. Any crudeness of manners, any lingering rudeness of the old-time "horse-doctor," any failure by his conduct to claim full recognition belonging to a polished and learned gentleman must result in his being looked upon as of less worth than the members of the well-established professions.

As to the duties of the veterinarian to others, from the standpoint of ethics, they differ in no way from those of the physician who gives his attention to the ills of humanity. I have found the ethical principles which have come to be recognized as binding upon members of the medical profession so well expressed by others that I take the liberty to make rather large quotations from their writings."

"It is perfectly ethical to advertise by giving your cards to those who employ you and to others who may at some future time need your services, but it is considered unprofessional to state where you graduated and how long you have practiced, either upon your cards or in the newspapers."

When you are the first to reach a case in which in the excitement if alarm for the safety of the patient a number of doctors have been summoned, with no special choice among them, you should promptly send a trusty messenger to cancel the call of the others and thus save them the unnecessary visit.

A decent respect for the opinion of the world should lead you to keep within the limits of good taste in everything, and to practice all that constitutes politeness in dress and deportment.

Signs and cards reading "practice limited to certain fields of practice" are perfectly ethical; but those that read "special attention given to certain forms of disease" are not.

While it is perfectly just and proper to seek reputation by all legitimate means, and to embrace every fair opportunity to make known your attainments, all low intriguing and sensational scheming to obtain practice is unethical.

You should determine that in all your efforts you will play the man, from your diploma to your deathbed; that you will begin well, continue well, and end well; and will do nothing that is criminal, nothing that

will not stand the strongest sunlight and the severest scrutiny; nothing for which you would hesitate to sue for your fee; and, if necessary, to stand up before a judge and jury to claim it; nothing, in fact, that you cannot approve of with your hand on your heart.

Nothing is more unethical than the exhibition of unprofessional tricks. The practice of medicine is an honorable profession and every person who enters upon it should resolve that it shall not be looked upon as in any way less than honorable because he has adopted it.

Honor and duty require you to do right not only because it is good policy, but because of the higher reason that it IS right.

Like every other physician, you will have friends to favor and extol you, and both secret and open enemies to oppose and decry you, and, although you can neither stop the tongues of the latter nor prevent their unfavorable criticism, still you should be careful that nothing be permitted to blast your reputation for upright, honorable conduct. Charges against your skill, unless very grave and damaging, had better be left unnoticed or passed over with indifference.

One of the most unethical things that a practicing physician can be guilty of is to boast of the number of cases he has on hand or of the wonderful success that has attended his efforts.

The United States seems to be the only country in which there exists a written code of ethics for the medical profession. It may be that other countries from long custom are able to dispense with them. But in this land where all social customs are still in the formative stage the very nature of society and the jarring of interests require that physicians shall have some general system of written ethics to define their duties, and, in case of doubt, to regulate their conduct toward each other and the public in their intercourse and competition.

Every individual in the profession is, of course, supposed to be a gentleman, actuated by a lofty professional spirit, striving to do right and to avoid wrong, and, even were there no written rules at all, the vast majority would conform to the rules of justice and honor.

The non-existence of a code would make it possible for unscrupulous practitioners to pounce down upon the patients of well-bred physicians like hungry wolves, and to carry on a regular system of infringements, self-advertising, certificate giving, and wrong-doing in general, regardless of their rights, while those aggrieved would have no visible standard of appeal.

In view of these facts there has been adopted a code of ethics in this country which is recognized as binding upon every physician who is qualified and admitted to the practice of medicine.

While the provisions of this code have especially in view the conduct of those who treat the human patient, its declarations are so obviously founded upon principles of right and justice that it should, with a few modifications, be adopted by the profession of veterinary medicine.

"Professional morals are an important part of medical education, and it is as necessary for every school of veterinary science in America to give to each alumnus a copy of the written moral code of his profession as it is to confer upon him his doctorial degree."

Good morals requires that when called upon to attend a case which has been previously under the care of another physician, especially if

the owner of the sick animal is dissatisfied with his treatment, or if the case is likely to prove fatal, that you be carefully just. Do not disparage the previous attendant by saying it is too late, and expressing a wish that you had been called sooner, or criticise his conduct or his remedies.

Seek to enhance your profession in public esteem at every fitting opportunity, and also to defend your brethren and your profession when either is unjustly assailed.

There are a thousand unwritten ways to show an ethical spirit and a thousand undefinable ways to evince an unethical one.

Medical quarrels are a disgrace to the profession. Do not captiously follow up every trifling infringement, difficulty or apparent contradiction, as if you courted a war with everybody for what you may be pleased to call your rights.

"With professional honesty for your pilot, be firm in your determination to steer clear of all practices and alliances in which your part would not bear legal scrutiny or detailing in the community; and you will not only safely pass the rocks of shame and the whirlpool of bitterness which have wrecked so many of your profession, but you will have that highest of all rewards—the approval of your own conscience."

Every science has its difficulties. Even in mathematics there is no such thing as a perfectly straight line, or exact sphere, or perfectly plane surface. The science of the law, or at least the practice of the science, seems to be based upon the uncertainties by which it is befogged. Religion has its numerus creeds and opposing system of belief. What wonder, then, since it is a human institution, that there are differences of opinion in medicine.

"The truth is, however, that physicians personally are far more imperfect than physics."

In closing, I think I can do no better than to read the oath of the physician said to have been formulated by the father of medicine nearly two thousand years ago.

It reads as follows:

"I swear by Apollo the physician, and Aesculapius and Health and All-heal, all the gods and goddesses, that, according to my ability and judgment, I will keep this oath and this stipulation to reckon him who taught me this art equally dear to me as my parents, to share my substance with him, and relieve his necessities if required, to look upon his offspring in the same footing as my own brothers, and to teach them this art, if they shall wish to learn it, without fee or stipulation, and that by precept, lecture and every other mode of instruction, I will impart a knowledge of the art to my own son, and those of my teachers, and to disciples bound by a stipulation and oath according to the law of medicine, but to none others.

"I will follow the system of regimen which according to my ability and judgment I consider for the benefit of my patients, and abstain from whatever is deleterious and mischievous.

"I will give no deadly medicine to any one if asked, nor suggest any such council, and in like manner I will not give to a woman a pessary to produce abortion.

"With purity and with holiness I will pass my life and practice my

our share is not far from $200,000. If our efforts result in a saving of even a small part of this amount we will feel satisfied with the effort.

The next problem is that of control and here we have a choice of many suggested ways. The most vital question is the method of transmission. If the disease is transmitted by means of the bull as was formerly believed then this animal must be considered. If as is believed by Hadley, Schroeder and Cotton and others the bull is a small factor then much of our previous effort has been misdirected.

Hadley's experiments seemed to indicate in no uncertain terms that the bull was a negligible factor. The only objection I can see to applying his results to herd conditions is that considerable time elapsed between the service of the last infected cow and the virgin non-infected heifers of the experiment. It would seem that the herd bull might serve an infected animal and then pass to a non-infected one the same day thus transmitting the disease. However, the experiments of Schroeder and Cotton would seem to eliminate even this possibility as they infected the penis with pure cultures of B. abortus and were unable to demonstrate that they were transmitted to the cow. The present tendency is decidedly in favor of denying any prominence to the bull as a factor in transmission.

Until further work has been done, however, we prefer to recommend that bulls from infected herds shall not be used on susceptible cows. Also we still urge the disinfection of the sheath.

Williams has strongly favored the view that calves contract the disease from their mothers' milk. This theory is now losing ground in the light of the findings of Schroeder and Cotton that calves born of infected mothers carried agglutinins in their blood for a time after birth but that even on infected milk these tended to decrease and were usually lost entirely during the first few months of life.

The observation of Eichorn and Potter demonstrated a similar phenomenon. It was the practice in the herd with which they worked to remove the calves from the herd as soon as they could maintain themselves. These were not returned until they were ready to calve. Of 163 of these animals tested only eight reacted positively although many of these had already been served by supposedly infected bulls and five had aborted. Their observations seemed to show that neither the mother's milk taken in calfhood nor the service of infected bulls were strong factors in the spread of the disease but wholesale infections took place only when the cows were returned to the infected herd.

Schroeder and Cotton call our attention to the udder as the natural habitat of the abortion bacilli and show that udder infection is possible even though no wound be inflicted. They found that the bacilli died out in a short time from the uterus but persisted in the udder. These findings taken in connection with those of Evans that large numbers of bacilli are to be found in nearly all market milk open up the possibility that udder infection by means of milkers transferring the organism from one cow to another may play a large part in spreading the disease.

The part that the uterine discharges play in infecting food and water is evidently considerable and that ingestion of infected food is a fruitful source of transmission seems to be proven beyond a doubt. Therefore the isolation of the recently aborted cow with proper care given to all discharges seems a most desirable procedure.

Control

Little need be said on the metylene blue treatment as the price of this drug is now prohibitive.

Carbolic acid seems to have been largely discarded as a preventive agent except as it may be used as a vaginal or uterine douche. That its internal use has often been followed by a cessation of the abortions no one can deny but that the carbolic acid was responsible is open to serious question.

Bacterins were tried out on a large scale by McFayden and Stockman in England and abandoned. Contrary to the usually expressed opinion their doses must have been enormous in size although they did not count the organisms. Our own Bureau of Animal Industry has tried them and found them wanting. Theoretically bacterins should be of service but those who are in authority both in England and America tell us that they are not.

Live cultures are being used very widely in England at the present time and our own Bureau is experimenting with them on a large scale so that we should have definite information in the near future. The reports from England are highly flattering. They are given in a single large dose to non-pregnant animals and at least two months before breeding. It is not our purpose to recommend them but at this time to give them a trial if opportunity arises. There is one procedure that seems now to be on a firm foundation and that is breeding up one's own heifers and refusing to sell those animals that abort. By this process and the isolation of aborters Turner succeeded in decreasing the abortions in the Washington herd from an annual average of 23 to 35 to 6 in 1914 and in 1915 up to August only 3. This was in a herd of two hundred cows. We have had a report of one of our own members who has eradicated the disease by the same methods.

Much has been said of uterine irrigations following abortions. Devine says irrigate three times a day if necessary. Williams has devised instruments for dilating the os after it has closed so that irrigation can be practiced. This association will doubtless divide into two camps on this very question. Schroeder and Cotton maintain that infection readily dies out of the uterus whether irrigated or not and suggest if irrigation is to be practiced it be done with physiological salt solution. Our own experience has been highly disastrous when we have used antiseptic uterine douches and until we can satisfactorily handle it ourselves we will not recommend it to others. We lost too many cows with septic metritis.

To sum up then our present recommendations for the control of this disease are as follows:

Directions for Handling Herds Affected With Contagious Abortion

Determine the animals that are affected by sending to the Veterinary Section of the Colorado Experiment Station, samples of blood from each animal. The samples should be drawn from the jugular vein through a sterile needle and into a sterile vial. The amount of blood sent should not be less than two drams. A complete record of each animal should be sent with the samples. The important items are: sex, age, whether dairy or range stock, calves delivered, and number of abortions.

Animals that have aborted should not be sold or otherwise disposed of unless it can be shown that there are only a few affected animals in the herd. Since with age cows become immune to the disease and many animals abort only once, a cow that is otherwise satisfactory is usually more valuable after she has aborted than a susceptible cow that is brought into an infected herd. Abortions seem to be continued in a herd by bringing in susceptible animals. The heifers that are raised in the herd seem after a time to acquire an immunity to the disease and thus it is possible by raising one's own young stuff to build up an immune herd.

Each aborting animal should receive special treatment. She should be kept isolated from the others until all discharges have ceased. The aborted fetus and membranes should be burned or buried deeply and the ground or floor where they have lain disinfected. The cow should receive a daily vaginal injection of a warm antiseptic solution. Compound cresol solution will be found satisfactory and can be obtained from any drug store. A tablespoonful of the cresol solution to a gallon of water will be sufficient. The injections can be given by means of a pump and tube specially manufactured for the purpose by all veterinary instrument makers, or with a piece of small garden hose with a funnel in the end. The cow should not be bred for at least two months after abortion and not then unless the vaginal discharge has ceased.

It is advisable to disinfect the bull before and after each service by filling the sheath with the above mentioned solution.

If cows fail to breed they should receive the attention of an expert who with the more recent knowledge at his command should be able after thorough examination to render a considerable proportion of these sterile cows serviceable.

A GLIMPSE AT OPPORTUNITIES

(Chas. G. Lamb.)

The question as to the future of veterinary practice and the status of the veterinarian of the future has been the subject of much discussion, and has resulted in various opinions being held relative to the subject.

The time was, and not so very long ago, when anatomy, physiology, pathology, materia medica and theory and practice, and in fact all subjects taught in every veterinary college had the horse as the basis and students entering college did so, almost without exception, for the purpose of learning to treat, primarily, the diseases of the horse. Cattle pathology and canine practice was touched upon but in most cases very lightly and the average young graduate had no practical and very little theoretical knowledge of cattle or canine pathology.

The advent of the auto and the tractor has materially changed veterinary practice. The auto as a pleasure vehicle has practically eliminated the light driving horse which formed the cream of practice and the truck has materially diminished the number of heavy harness horses and the tractor promises to diminish the number of farm horses, but no method has yet been devised to make milk with gasoline power. They milk her with gasoline driven machines, but the milch cow is still the head plant for the manufacture of milk.

Owing to these changing conditions, the curricula of the colleges were considerably modified so as to pay an increased attention to cattle pathology and canine practice, but there is one place where I think the curricula of all veterinary colleges need very decided revision and enlargement, and where the education of almost every graduate is weak, and that is the point to which I wish to call your attention and to urge upon you all that there is an opportunity for us to increase our information upon one branch of knowledge and materially benefit ourselves and incidentally benefit the entire country. In these days when the country is in need of every pound of food that can be produced, the veterinarians of this state and of the entire country can be of the greatest benefit to the country in the matter of safeguarding the live stock of the country and preventing in every possible way the loss of any food producing animal.

It has been said that any person who causes two blades of grass to grow where only one grew before is a public benefactor, and that is particularly true in these trying times. I believe it is also equally true that any person who produces a pound of edible flesh at a less cost than it has before been produced, is equally a public benefactor, and this is the point I wish to make regarding the weakness of the college curricula and the average veterinarian. They are weak in feeds and feeding. How many veterinarians received adequate instruction in or now have satisfactory knowledge of this important subject? In former years when food was very cheap and the finished product sold for a very low price, it may not have been of such great importance, but with the present price of both food and finished product together with the great demand and the absolute necessity of producing the greatest possible amount at the least possible cost, it becomes of the utmost importance.

This state is rapidly increasing the number of cattle, sheep and hogs in the feed lots and is destined to still further increase her production of the finished produce of beef, pork and mutton. Certain sections of the state feed hundreds of thousands of sheep and in each of these sections the percentage of loss is much higher than it should be, not from any disease but from errors in feeding. When loss occurs in feed lots, the veterinarian is naturally the first to be called and right here I wish to say that my experience has convinced me that four-fifths of the sickness which veterinarians are called upon to treat is due to errors in feeding or care, and I advise when you are called to investigate sickness or deaths in feed lots that instead of consulting your books or brain to find some disease to fit the symptoms, you make a most thorough investigation of the quantity and quality of the food and in most cases the fault will be found to lie there. I do find that in a large percentage of feed lots, the feeding of animals is in too great a degree a sort of hap-hazard business, and the proper balancing of the ration is something the feeder knows very little about, and one of the opportunities of the veterinarian is to equip himself so that he is able to intelligently advise the feeder on this most important subject, thus insuring himself of the confidence and regard of the feeders and incidentally being of great benefit to the community and country in helping to prevent loss and in aiding to produce meat at a reduced cost.

In addition to the many individual feeders, there are corporations, notably the sugar companies, feeding a large number of cattle, sheep and hogs, and here is an opportunity for the properly equipped veterinarian to obtain a good paying position. It is currently reported that one of the sugar companies made a profit of one million dollars last year in their

feeding operations. These corporations may be soulless, but they are certainly business men, and if any veterinarian could show them how by a different combination of food and care each dollar of profit could be increased to one dollar and one cent, it would mean an additional profit of ten thousand dollars, and do you not suppose they would be willing to give the veterinarian a salary of at least one-half that sum? There are numerous positions of this character in this and other states awaiting the veterinarian who can make good in this feed lot work, but he must absolutely know his subject, otherwise he will be replaced by an animal husbandry man who does know his subject. In doing work of this character, the veterinarian is not only adding to his income and increasing his prestige in the community, but he is doing a very valuable work for the country in conserving the life of food animals and in producing an increased number of pounds with the same expenditure of food.

As a concrete example, I was recently called to a feed lot where about 300 cattle had been on feed for about sixty days and where several had died and a number were sick. I found the daily feed consisted of 24 pounds of alfalfa meal, three pounds cotton cake, three pounds of molasses and six pounds of corn per head.

At $27.00 per ton the alfalfa meal cost	32c per day
At $45.00 per ton the cotton cake cost	7c per day
At $50.00 per ton the corn cost	15c per day
Of the molasses I do not know the cost	
Total per head	54c plus hauling
300 head cost	$ 162.00 per day
For 60 days the total cost was	9,720.00
For 60 days the total per head was	32.40
Original cost (estimated)	80.00
	$ 116.40

Hence the loss of even one animal was a serious loss to the owner.

How many of us can take this ration and scientifically point out the errors and readjust the different chemical elements in such a manner as not only to prevent further loss, but to produce the greatest gain with the least expenditure of food or time. I confess my inability, still these are problems which are and should be put up to the veterinarian frequently, and we should be able to solve them.

I think I have given a glimpse at opportunities which await the veterinarian who can absolutely make good along this line which is already of great importance, and is destined to be of still greater importance, but only such veterinarians as are thoroughly qualified need apply, and I urge upon all, particularly the younger members, that they qualify themselves for positions in this vast field.

COTTON SEED POISONING IN PIGS AND CALVES

(A. G. Wadleigh.)

Owing to the high feeding value and its low cost compared to most other feeds, cotton seed is being used to a larger extent each year in the livestock industry. The fact that our text-books have very little to say on this subject and because of the increasing importance of this valuable

feed, it seems to me this subject is worthy of our consideration as well as further investigation.

Cotton seed is fed to live stock in three different forms, whole cotton seed, cotton seed meal or cake, and cotton seed hulls. The meal contains 37.2 per cent protein and is the only form that is used to any extent in this part of the country and consequently the only form referred to in this short paper which will be confined almost entirely to my own personal experience.

While I have seen several other cases of cotton seed poisoning, and have heard of many others, I will only describe two herds, one of pigs and one of calves. And as these were typical cases of cotton seed poisoning and being more familiar with conditions existing in these herds I think these will be sufficient.

Some time ago a stockman called me to his ranch to investigate the cause of his pigs dying. On inquiry I learned that about 60 shoats weighing from 60 to 80 pounds had been running with steers in fattening pens for about six weeks and ate the pieces of cotton seed cake that fell from the feed troughs. Also that no hogs had died in other pens where no cotton seed was fed. Owner had lost five pigs and suspected cholera, several more were sick and showed the following symptoms; loss of appetite, weakness and continual lying around, when forced to get up would usually move in short circle always turning in same direction, occasional coughing, constipated, temp. 104 to 106, resp. accelerated.

I autopsied quite a number of these pigs and all showed the same lesions which were as follows; some pneumonia with bloody froth in trachea and nostrils, some gastritis, severe enteritis in both small and large intestines, other organs were nearly normal.

Treatment: Healthy pigs were removed from pen and given magnesium sulphate in slop for several days, but they continued to die for about two weeks and at that time only 20 remained out of 60. They were usually sick from two to four days. None recovered that were sick. Other hogs were placed with these but none of them were affected in any way. eliminating any chance of cholera or other contagious diseases.

Another case of cotton seed meal poisoning. Owner began feeding a little meal to 14 calves ranging in age from three months to 9 months. Only a small amount was fed, about 5 or 6 pounds to the 14 head. After four weeks one of them became sick and at six weeks two more were sick and at this time I was called and advised the owner to stop feeding the meal to calves. However, the calves continued to die until 12 had died, leaving but the two oldest calves aged 7 and 9 months which represented the enormous profits derived from this herd of calves.

These calves began to get weak and staggered some in walking for about two weeks before dying. Also small quantities of blood was passed in feces during that time, otherwise the feces were about normal until a bloody diarrhea would suddenly develop, the calf then weakened and died in from 6 to 24 hours. These calves all had good appetites until they became so weak they were unable to rise. No symptoms of pneumonia were present. It was impossible for me to autopsy any of the calves, but I think perhaps the enteritis would have been about the only abnormal condition found. Treatment consisted of oleum lini with intestinal antiseptics, but with no improvement and every sick animal died. One calf died six weeks after the meal was taken from the feed. One seven months old calf died while another the same age lived, indicating

that the age limit when calves may safely be fed cotton seed meal must be about eight or nine months. Nearly all cattlemen in this vicinity feed the meal to calves after they are nine or ten months old, and with good results.

All efforts to determine the poisonous principle in the cotton seed (if there really is one), have thus far proved futile, and the matter is still a mystery. The ill effects have been ascribed to the lint of the seed, to the leathery seed coats causing injury to the mucous membranes, to moulds, to changes in the composition of the meal when exposed to the air, and to some definite poisonous principle in the seed itself, as in the case of the castor oil bean. Personally, I think the lint theory sounds reasonable because it seems to be largely a local proposition and therefore a mechanical irritation caused by the gradual accumulation of lint on the mucous membranes.

To sum up, as cotton seed is increasing in importance as one of the concentrates used in feeding livestock, the danger of it being fed to young animals is also increasing. It is unprofitable to feed cotton seed to hogs of any age or to calves under nine or ten months of age.

As to the etiology of cotton seed poisoning there is need of much further observation and investigation. Treatment is unsatisfactory and therefore prevention must receive much attention and it behooves us as veterinarians to aid in this manner at least in helping to control this loss in the livestock industry.

CONDITIONS

(Geo. W. Dickey)

Difficult questions are not solved by men, but by events. Geo. W. Perkins said the other day, "Individualism is as dead as a smelt." There can be no doubt that the greatest stumbling block to progress is the human inclination to follow precedent too closely. We find it very difficult to strike out along entirely new lines, to men of the preceding age, we are given to ascribe wisdom more than human. The advancement in science, inter-communication, and universal education account for the great progress this country has made in the last decade. They have swept away old precedence and customs and will continue to change our way of living and doing business. The man who fails to comprehend all this is doomed to be more or less of a failure. It's not so long ago since as a boy, I first heard the human voice thru the telephone; now, we could no more think of doing without one than to do without some mode of conveyance. Then we had not dreamed of the flying machine yet the other day a young woman traveled from Chicago to New York alone in one. We thought Jules Verne had done his imagination proud when he wrote "Twenty Thousand Leagues Under the Sea." Yet a few weeks ago the submarine Deutchland tied up at one of our wharves, fresh from a trip across the sea in spite of all the vigilance of the Allies.

In 1852, when Joseph Lister was graduated, we were in ignorance of what he had in store for the good of humanity, and many are the honors showered upon him for the blessing which he only could have obtained by scientific thought and training. Who of us would not be proud to have the Medal of the Royal Society pinned on him, as he had in 1880?

This is a wonderful age we are living in, the sciences are making greater progress in one year now than previously they did in a century. What is the outlook for the veterinarian in this change that is coming surely and swiftly? Is it a sad, pessimistic future that unfolds, or is it an optimistic future? With fine opportunities and more worth while goals?

Let me see if I can picture it as I see it.

On the whole, the individualistic age has not been a success, either for the individual, or the community in which he has lived, or the nation.

We are, beyond question, entering on a period where the welfare of the community will take precedence over the interests of the individual, and where the liberty of the individual will be more and more circumscribed for the benefit of the community.

Man's activities will hereafter be required to be, not for himself only, but for his fellowman.

He will partially lose sight of the almighty dollar, and more and more follow the bent of his imagination, and possibly some of you gentlemen may do as much or more for humanity than Dr. Lister.

We may as well admit to ourselves that our star will set within the next few years, if we do not wake up and not only keep in the procession but try to head it. Food and its conservation should be our aim. Transportation and its difficulties have been overcome by the motor vehicle, replacing the horse. This robs us of one great branch of our practice and causes us to branch out into a wider branch of service for which we need more education. An A. B. degree should be prerequisite with four full years, instead of terms of six months, for a veterinary degree. In the future, I believe, we will be forced to specialize. There are many fields for specialization open to the veterinarian, for example:

Stock Raising

To assume the responsibility of a large stock proposition a veterinarian should have a business education, as well as a scientific, which would qualify him to take entire control of a million dollar proposition, if need be, instead of being called in as a hired man.

County Advisor in Veterinary Sanitation and Productive Animal Husbandry: The time is not far distant when the stockraiser will demand this from our government, if we can demonstrate to them that we are capable of filling such a position, we should not have any opposition.

Field Work

This to my mind should include Parasitology, Bacteriology, Botany, and the possibilities of Immunization to control all contagious and infectious diseases. Do you know that the livestock losses in the United States last year was something like $225,000,000? No doubt each of you will admit your share was contributed, unwillingly. Right here I think is our greatest chance to do our BIT.

The Sheep Industry

Sheep with their diseases and peculiarities forms a large and economic field in itself.

I have only mentioned some of the most obvious. My idea of this subject is that each one of us should perfect himself in some one branch of veterinarianism so as among us to be able to conserve public health and its food supply, then, and not before, we may expect representation on each board of health throughout the whole United States.

In the meantime our Veterinary Colleges will have a full course in which we can specialize in anything we may choose and where the veterinarian can obtain a degree of Doctor of Public Health. Why let the M. D., who is not better fitted by natural ability or environment, assume the whole charge of our public health questions? Gentlemen, let me tell you that when this war is over, and maybe before, we, that is the whole world, will have to practice such economy and conservation as never before known.

I think it is our duty to try this year to help the United States to stamp out every disease possible, which is another way to help us do our bit. The time will come very shortly when the health of the nation will not be under control of a board of politicians, but under trained health experts, who will demand trained men to do the work. Are we able to assume so vast and complicated a contract, with any assurance that we could make good? We will want veterinarians of many special trainings.

There is no doubt in my mind but we could help and benefit the various stockmen, beyond our wildest dreams, if we would only organize ourselves and each assume one part to play. Specialize, that is the thought.

May we of Colorado, who belong to the progressive West, be the first to offer all the different degrees to the profession, and may our young men early learn that it is education coupled with experience, that can ever hope to bring the profession to the front where it belongs. Thomas Jefferson has said, "Forty years of experience is worth a century of book reading."

A house is more than mere architecture. A house in which we live should be a homogeneous and harmonious whole.

A profession is more than the outlines we are taught at school. It is what we bring to it with our every thought and effort for its advancement and the advancement of the various members who comprise it. We should be careful of our conduct, lest we injure our brother; Conscientious in our effort, never too wise to listen and learn, no matter from whatever source, and always striving to dignify the profession.

When all these specialized individuals are combined into one harmonious unit, the profession will grow and advance more rapidly than in any time previous. This will be due to specialized co-operatin for the benefit of the profession as a whole.

CLINIC

(In charge of Dr. H. E. Kingman)

Case No. 1—Chestnut Gelding, Age 17 years.

History: Chronic lameness over a period of years. Suddenly became worse in both hind feet.

Symptoms: Back arched, gait mincing, unable to trot, weight placed on heels, toe coming to ground last. Animal lies down much of the time. Hoof smooth.

Diagnosis: By Dr. Bird. Rupture of perforans tendon at its insertion. No treatment recommended.

Case No. 2—Sorrel colt, female; 2 weeks old.

History: Escape of urine from umbilicus since birth. Animal otherwise normal.

Diagnosis: By Dr. Dickey. Pervious urachus.

Treatment: Full curved No. 4 needle threaded with No. 4 cat gut. Field shaved and disinfected with McDonalds solution. Needle passed thru skin 1½ inches above external opening of urachus. Skin held tense while needle is passed around umbilical cord subcutaneously, the needle finally being brought out thru the skin at the place of entrance thus ligating the urachus subcutaneously.

Result: Complete recovery.

Case No. 3—Bay mare; age 7 years.

History: Swelling of the poll with purulent discharge of several months standing.

Diagnosis: Poll evil.

Surgical treatment by Dr. Kingman. Longitudinal incision 1½ inches from median line. Ligament and cicatrical tissue excised. Hemorrhage controlled by packing. Pack removed after 24 hours. Daily irrigations with Dakins solution.

Result: Case dismissed at the end of twenty-one days, discharge having ceased.

Case No. 4—Holstein cow; age 8 years.

History: Been ailing for several weeks, gradually losing flesh but with fair appetite. Small swelling of brisket developed in last few days.

Diagnosis: By Dr. McCarroll. Traumatic pericarditis.

Destruction recommended.

Post-Mortem Examination: Left lung practically destroyed, containing abscess holding several gallons of pus. Heart very much compressed, flabby and pushed to one side. No pus in pericardium. Small piece of wire nail found in the lung abscess.

Case No. 5—Jersey cow; age 4 years.

History: Comes from a herd that show nodules on their teats. These arise slowly, finally rupture, discharge pus and heal gradually leaving the teat distorted.

No diagnosis was made.

Cultures were taken from the pus evacuated from one of the nodules but no definite diagnosis was possible.

Case No. 6—Bay gelding; 2 years old.

History: One week previously animal sustained a wire cut across the shoulder about 15 inches long and 2 inches deep. Treated with daily irrigations of Dakins solution.

Result: Discharged three weeks later in good condition but wound had not entirely healed.

Case No. 7—Percheron gelding; 2 years old.

History: Shed fell on animal in such a way that a 20-penny nail pierced the loin just anterior to the crest of the ilium. Had been irrigated with Dakins solution one week previous to meeting. On the morning of the meeting he refused food and developed a temperature of 104 with rapid pulse and respiration.

Diagnosis: Traumatic peritonitis.

Exploratory operation with a view to establishing drainage was unsuccessful.

Result: Animal died four days later.

Post mortem revealed purulent tracts passing down outside of peritoneum and in the region of the groin.

Case No. 8—Bay gelding; 5 years old.

History: Lame in left hind leg for six months.

Diagnosis: Spavin.

Treatment: Puncture firing by Dr. Drew.

Case No. 9—Black dog, weighing about 40 pounds.

History: Found in a partially paralyzed condition and brought to hospital.

Symptoms: Incoordination, emaciation, anorexia.

Diagnosis: By Dr. Glover. Distemper Tic. Dog destroyed.

Case No. 10—Black mare; 10 years old.

History: Purulent discharge from vulva for 6 months previous.

Diagnosis: Endometritis.

Treatment: Dakins solution irrigations followed by capsules of boric acid. Result unsatisfactory. Mare died 30 days later from septicemia.

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Colorado veterinary medical association
Proceedings for the year

PROCEEDINGS FOR THE YEAR 1918

COLORADO VETERINARY MEDICAL ASSOCIATION

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Fifteenth Annual Meeting

At Denver, Thursday, January 25th

Sixteenth Semi-Annual Meeting

At Fort Collins, Thursday and Friday,
June 27th and 28th

OFFICERS FOR 1918

R. H. BIRD, Greeley.....President
GEO. H. GLOVER, Fort Collins.....1st Vice President
O. B. MORGAN, Rocky Ford.....2nd Vice President
I. E. NEWSOM, Fort Collins.....Secretary-Treasurer

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F. W. CULVER, Longmont

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C. M. Hall.....Denver
A. A. Herman.....Denver
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Earl Jennings.....Clayton, N. M.
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N. J. Miller.....Fort Collins
O. B. Morgan.....Rocky Ford
I. E. Newsom.....Ft. Collins
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Otis Perrin.....Ft. Lupton
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R. C. Swallow.....Ft. Morgan
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ANNUAL MEETING OF THE COLORADO VETERINARY MEDICAL ASSOCIATION HELD AT THE GENTLEMEN'S RIDING AND DRIVING CLUB, DENVER, COLORADO, JANUARY 24, 1918.

MINUTES

In the absence of the President and Vice President, Dr. Charles G. Lamb was selected as temporary chairman.

The report of the Secretary was as follows:

SECRETARY-TREASURER'S REPORT

There are in good standing at this time 54 members, eight of whom are now in the service of the United States Army. From the financial statement which I submit herewith, it will be evident that some measures will have to be taken either to increase our revenue or decrease the expenses. Since we have begun the practice of publishing our Proceedings, the drain on the treasury has been considerable, until now we find ourselves not having sufficient funds to pay our necessary expenses. I, therefore, recommend that either the publishing of the Proceedings be held in abeyance or that the dues be raised to $3.00 a year.

RECEIPTS—	
Balance on hand	$70.62
From other sources	47.00
	$117.62
EXPENSES—	
Lunch	$28.35
Stamps	4.25
Publishing Proceedings	70.00
Envelopes	.60
Secretary's salary	20.00
Publishing Programs	2.00
Postals	1.50
	$126.70
Overdrawn	$9.06

Respectfully submitted,

I. E. NEWSOM.

The Secretary-Treasurer's report was referred to the Executive Committee for action. They recommended a revision of the by-laws as follows:

Chapter 4, Article 1—Strike out the words, "and holds a certificate to practice in the State of Colorado" and add instead, "and shall make application for membership at least three months before being voted upon."

Article 2—Replace "two" by "three," making the dues $3.00 instead of $2.00.

Article 4—Strike out "associate," replace by "active."

These amendments were to be laid over until the Semi-Annual Meeting.

The applications for membership of Drs. Charles Grange of Longmont, John Dudley Thrower of Denver, Carl Martin Hall of Denver and Thomas B. Jones of Las Animas were received and acted upon favorably.

Dr. Glover explained that he was commissioned to give all examinations for the Veterinary Officers' Reserve Corps of the Army and urged those who cared to join to see him as soon as possible.

It was moved, seconded and carried that the dues of members be remitted while in the service of the United States Army.

On reading a communication from Dr. Blattenburg regarding the fund being raised by the A. V. M. A. for the relief of veterinarians and their families in the present war, it was decided to donate $100 from the Association and declare an assessment of $2.00 on each member. Forty-two dollars of this amount was raised at the meeting.

President Bird having arrived, took the chair in the afternoon.

The following program was given:

Physiologic Facts and Fallacies.....R. F. Bourne
More about Poisonous Plants.....G. H. Glover
Vaccination of Sheep against Hemorrhagic Septicemia.....I. E. Newsom

Talks were made by Dr. F. S. Schoenleber and Mr. W. J. Kennedy.

Dr. Fisk moved that the present officers be re-elected for another year. It developed, however, that the Second Vice President had withdrawn from the State so that Dr. O. B. Morgan was elected to fill this vacancy. Dr. Fisk's motion prevailed.

A vote of thanks was given to the Gentlemen's Riding and Driving Club for the use of their rooms.

SEMI-ANNUAL MEETING OF THE COLORADO VETERINARY MEDICAL ASSOCIATION HELD AT THE COLORADO AGRICULTURAL COLLEGE, FORT COLLINS, COLORADO, JUNE 27 AND 28, 1918.

MINUTES

The association was called to order at 9:30 A. M. by President Bird in the chair.

The financial report of the secretary was read as follows:

FINANCIAL REPORT

Receipts January 24 to June 26, 1918

Dues and Fees	$106.00

Debits

Overdraft	$9.08
Janitor—Gentlemen's Riding and Driving Club	2.00
Stamps	8.50
Postal cards	1.60
Programs	4.50
	$25.68
Balance on hand June 26, 1918	$80.32

The amendments to Chapter 4, Articles 1, 2 and 4 presented at the Annual Meeting in Denver were adopted.*

* To be found on Page 4.

The special committee that had been appointed to see the Governor relative to the examing board reported that before they were able to carry out their missioon one of the members of the board had been called into service and was now in France. On vote of the association, the name of Dr. A. N. Carroll of Pueblo was substituted for that of Dr. P. C. Guyselman, and the committee ordered to proceed with its work.

The members of the executive board being absent, a temporary board consisting of Drs. O. B. Morgan, G. H. Glover and D. C. Patterson was appointed.

The names of Drs. A. W. French, Cheyenne, Wyoming, H. R. Millard, Cheyenne, Wyoming, Earl Jennings, Clayton, N. M., W. J. Scott, Ft. Collins, Colorado, W. L. Brown, Montrose, Colorado, E. H. Lehnert, Laramie Wyoming, E. W. Alkire, Ft. Collins, Colorado, H. E. Smith, Littleton, Colorado, R. F. Bourne, Ft. Collins, Colorado, G. A. Wright, Ft. Collins, Colorado, and Wm. H. Bray, Fowler, Colorado having been approved by the executive committee were elected members of the association.

On motion a committee consisting of Drs. E. E. Tobin, O. B. Morgan, and N. J. Miller was appointed by the president to consider the matter of a uniform fee for the administration of biological preparations, this committee to report at some future time.

PRESIDENT'S ADDRESS

R. H. Bird

Gentlemen:

Some association rules like some legal enactments are apt to be more honored in the breach than the observance. The rule of this association calling for an address by its president is one that I am almost disposed to contend in this instance, is open to this interpretation, for the reason that the duty has devolved upon me on former occasions and the exercise of it may be growing stale and wearisome. However, I cannot afford to establish a bad precedent for my successors and will nominally conform to the rule, but in the briefest manner.

In the first place I wish on behalf of this association to extend a hearty welcome to our visiting "Confreres"—and I venture to express the hope that their visit with us today will be one of mutual pleasure and benefit. The State Agricultural College is the proper place for us to meet at this season. We are alway assured of a generous welcome by the faculty. Our meeting here at this time is particularly appropriate—the College is on a war footing—it is a training school for experts in many important branches of the war business, which is now the principal business of the nation. The veterinary section, in which we are most interested has furnished a large quota of its boys to serve the flag. In such environment and with such an example, we should become thoroughly imbued with that patriotic professional energy which is calculated to raise us to a high notch in public esteem and furnish proof to the nation of the value of well performed veterinary service in helping to win the war. Whether we have been chosen for military duty or are fated to remain obscure and inglorious workers in city or country town, let us never forget that we are all engaged in the great struggle for world freedom, and that if we do our best in the sphere allotted to us at this crisis, the distinction is immaterial. I have seen the veterinary profession grow from small dimensions into a great educational factor for national efficiency. The exigencies of the war are forcing the Government to take an increasing interest in veterinary affairs. The attainment of gradational rank by veterinarians in the army will call for the highest type of educated professional men to compare favorably with sister branches of the service. The war cannot be said to have been an unmixed evil for the veterinarians of this country. In addition to having called into active service some of the best matured veterinary talent, it has opened to hundreds of younger members an honorable and distinguished career in their country's service. The very nature of this service will enable them to acquire an extended knowledge of surgical and medical proceedure denied to the civil practitioners and as this war has been a wonderful stimulus to all scientific achievement it is only to be expected that Veterinary Science will be proportionately advanced. The war is affecting the teaching branch of our profession. It has compelled the closure of one private institution for economic reasons and will probably affect others in the same way but the trend of the times is evidently for the Federal Government to assume a more aggressive and complete control over the health of the nation's live stock and incidentally of veterinary education. It is to animals furnishing the food supply that veterinarians must devote particular attention, and prevention of the diseases affecting them rather than the individual cure should be the ground aim of all veterinary endeavor. What effect is the war going to have on the future of our equine friend who used to be our principal and most lucrative patient? With the advent of the peace era, sooner or later the demand for his services as a military aid will have ceased, and it will then be a question largely industrial of the survival of the fittest, equines versus auto

truck and tractor, with, I apprehend, the chances in favor of the latter. Not that I think the horse will ever become industrially obsolete, but that his services will be decreasingly availed of is a fact that we cannot be blind to. However one bright star in the future of the horse is that the depleted European countries will be forced to come to the United States to rehabilitate their stock of breeding drafters and thanks to our having imported their very best for many years past, we are in a position to supply them. Then having another direct bearing on the horse's destiny is the debatable question of eating him. This practice, if it should become common, would solve all speculation as to his future usefulness, but as it is an economical as well as a gastronomical problem, I am going to leave further consideration of it to Dr. Glover, who I see from recent literature is an authority on horse meat and how to cook it.

Accept my apologies for the imperfection of this brief discourse and let us now proceed with our program. In connection with this, I may say that if we prove short of subjects to discuss, as this is the draft age, those gentlemen whose names are not listed as contributors are liable to be called on to fill the bill.

CASES OF PROBABLE MISDIAGNOSIS

By D. C. Patterson

The first case to report is of a dog belonging to a Catholic priest.

History.—Several months previous to bringing the dog, which was a Fox Terrier, to my hospital a large automobile had run over him. This did not put him out of commission, but broke a floating rib and left him with a hacking cough. This cough was marked on exertion, and the dog was brought to me with instruction to treat for a few days, then if no improvement was noticed, I was to kill the dog. I administered the potassium chlorate treatment which did not change conditions, so the dog was killed.

Autopsy.—I found one floating rib broken and kidney beneath enlarged to twice its normal size. Large rupture in right side of diaphragm, the small intestines had entered the thoracic cavity and adhered to the anterior end. The right lung was entirely occluded by pressuse of intestines. This caused hacking cough.

Case No. 2.—On March 8, 1918, I was called twelve miles north to the residence of Paul Wilson. On arriving, I found one two year old filly sick one yearling recovering and one two year old ridgling dead. The owner had dead animals skinned and removed to distant part of farm. On account of number of cases found simultaneously, I thought it was wise to hold autopsy first.

History of Dead Colt.—Some two months previously the colt began to have what the owner thought was colic. Animal would be eating normally when all at once it would look around to the side and lie down. It would lie quiet, not roll. In fifteen or twenty minutes, it would get up and resume eating. These attacks continued for two months, but never serious enough to call a veterinarian. On the evening preceding death, animal ate grain and hay. Seemed to be in perfect health. Was found dead in morning, dying evidently without a struggle. On autopsy, I found a rupture of five or six inches long in large intestine. The owner asked me to show him the testicle, which I did. The spermatic vessels were twisted into a light cord and blood vessels strangulated. The cord was twisted hard for five or six inches. This is the specimen. (Exhibiting specimen). If I should have been called on this case, I should have diagnosed it as a dietic disorder.

Case No. 3.—On June 3, I was called 25 miles south to Lou Funk's place to hold consultation with Dr. Barnhart of Akron, who had been called on case at 2 P. M. Not having any results, he had Mr. Funk call me. I arrived at dark.

History.—The animal, a prize winning stallion, bought at the Western Stock Show last January was in pink of condition, very amorous, bred a mare at 10 A. M. Owner went to feed him at noon and found him wet with sweat and breathing hard. When Dr. Barnhart arrived he diagnosed the case as indigestion, gave aloetic cathartic and heart stimulants, with no results. When I arrived the horse was very restless, would not stand still one minute, heart fairly strong, no sweating, would lie down on side, roll over and get up, paw, back but never still. I suspected scrotal hernia but on examination eliminated that and thought Dr. Barnhart was correct. I passed the stomach tube, got very little gas, then I gave 1½ pounds of salts and one ounce of chloral. The symptoms did not abate, although did not roll quite as much after chloral took effect. Flatus was passed quite regularly, no tympany. At about 2:30 I passed stomach tube and got a little gas and Ascaris megalocephala. I then knew there was a tie up in the small intestines, possibly from ascaris. Temperature never below 102 degrees. The horse died about 9 A. M.

On autopsy, we found rupture of diaphragm beneath sixth rib on right side, an opening the size of width of two fingers, about twenty feet of small intestine were strangulated within thoracic cavity, being as black as tar. The lungs were very hemorrhagic, or in stage of red hepatization in pneumonia.

Sequel.—This horse was the champion sweepstakes and reserve champion at the Stock Show last winter. The sixth rib above seat of rupture had been broken, probably two years ago, an exostosis three inches in diameter and as thick as your finger formed beneath the rib. The diaphragm had formed adhesions to rib. The adhesions had been broken during time of breeding in the morning, causing rupture of the diaphragm.

Case No. 4.—This case I must go into detail as much is involved from monetary standpoint.

History.—On November 5, I was called to Fleming, Colorado, to see hogs dying, which on post mortem I diagnosed as cholera. On November 6, I vaccinated hogs for Patterson Brothers, Mr. Grant, Al Worthy, C. Herdecky. John Herdecky and L. P. Wilson. C. Hardecky had pigs dying. John Herdecky's pens were within 100 yards of the pens of L. W. Davenport, who had the cholera right, and perhaps 25 dead hogs lying on premises for coyotes to pick up and carry off. Mr. Wilson was within one-half mile of cholera hogs.

In all these cases I aimed to give ½ mil serum per pound weight and shoats up to 60 pounds 1 mil virus, over this 2 mil virus. These pigs of Mr. Wilson's were in fair condition, except perhaps a dozen that were decidedly unthrifty, one or two had large ulcers eaten through nose and some had sore feet. I saw Mr. Wilson on the seventh day after vaccination and he told me that nine were very sick and thought they would surely die. I told him that was too many, that I expected to lose one or two, but nine was too many. I saw him on the eleventh day and he told me they were all O. K. and no loss whatever. He was so well pleased that he told me that he would go to Nebraska to buy another car and have me vaccinate them. He went to Nebraska and could get nothing less than 23 or 24c per pound and did not buy. In the meantime there was a cholera scare south of Fleming, Colo., and on the 20th of November, I vaccinated approximately the following; Elmer Graham, 20 head; Marion Graham, 100; John Niebers,

120; Edward Kuhn, 20; Wm. Stones, 30, and Ora Hays, 25. I used simultaneous treatment on all but thirty head of these. Some were very unthrifty. Used same brand and amounts of serum and virus as on Mr. Wilson's and with no loss whatever.

About this time Mr. Wilson went to Denver and bought hogs from Wyatt Commission company and young Mr. Miller, son of J. A. Miller, and were guaranteed to be immune by the simultaneous method. They arrived in Fleming about Thanksgiving, after being on car 72 hours. They had had very poor care in transit and consequently there were over 1300 pounds of shrinkage. These and the original that pigs I had vaccinated began to die and I was called on the 29th of December to diagnose case as Mr. Wilson was sure they were dying from cholera and he was going to sue Mr. Miller on contract. When I arrived it was a cold chilly day with wind blowing from the southeast. Several pigs were dead, twenty-five having died previously, ranging in weight from 25 to 50 pounds perhaps. Fifteen of the original herd were crowded up in the corner trying to keep warm. Two or three of these tucked up in flank, others apparently normal. I held autopsies on all dead ones, 6 or 7. There were pneumonic areas on lungs a very few petchia on kidneys, large ulcerated areas on large intestines, some places for several inches. Some had ulcers on ventral surface of body from size of pea to that of end of finger. I next went to examine the Miller pigs. They were in narrow long pens. Some of these were purging freely, nearly pure water with yellowish tinge, but when you tried to catch them it was next to impossible. If they had been in an acre lot you would have had a fat chance catching one. These pigs were very lousy, literally eaten up by lice and many had ulcerated areas along belly. I took no temperatures as I knew by symptoms that they would be high.

I diagnosed the case as simple necrobacillos, advised dipping at earliest time when weather would permit, isolation of sick from others, thorough disinfection of pens; telling him he would have a large loss but to do the best he could. This dissatisfied the owner as he wanted the cholera and Mr. Miller had to come through.

Three other veterinarians were called in and were down three or four days afterward. Autopsies were held and they pronounced it hog cholera. Mr. Miller had been telegraphed for to come at once and bring 17,000 mil serum. Now Mr. Miller was sure he was right in selling those pigs as immune, and came down on 2:20 P. M. but was carried by and got to Sterling next day noon, so he came to see me and told me of order to vaccinate. I got busy with my brother, who is a banker in Fleming, and held the paper on these pigs and told him not to stand for serum as as I was certain my diagnosis was right and that pigs would die just the same after vaccination. He went to the premises and seeing his money was secure, let vaccination proceed. Now the exact number that died and exact number vaccinated, I cannot give you as Mr. Wilson thinks it would damage his suit to give me exact figures. If I am not mistaken, he told me vaccine cost him over $200. Over 100 had died and are still dying.

One of these veterinarians diagnosed the original bunch dying of chronic hog cholera. Too much virus and not enough serum. Now let us look at the conditions as found from the start; shoats having necrobacillosis from beginning. Only 9 showing symptoms of cholera after vaccination.

History—.Necrobacillosis on premises from beginning.

Size of hogs dying 25 to 50 pounds.

Pigs feel fine for months after vaccination, then one by one go off feed and die.

Pigs alert have to be cornered or run down to be caught.

Squeal like being killed when caught, pile up in bunches.

In chronic hog cholera which I consider, and most veterinarians agree, is nothing but a mixed infection following true hog cholera, does not exist. I would expect practically all lesions as found in entire form of necrobacillosis.

Differential diagnosis.—Hog cholera segregation, dullness.

History.—When I see a case of this kind I think of Wade Hamplin of Littleton who lost thousands of hogs with this same disease from year to year. What are you going to do about it? If I am right, the only thing to do is to clean up the premises and never move hogs to new location. If the other three veterinarians are right, 75 shoats dead since last vaccination and still dying, I should think it was time to give another dose if you dare to enter the premises with vaccination syringe again. You have diagnosed the case satisfactory for legal purposes, but the owner would like for me to tell him what is the matter with his pigs.

DISCUSSION—Mr. Miller—These pigs were quite thrifty at the time they were purchased and were eligible for register.

Dr. Harrington—There is no occasion for secrecy here. The three veterinarians mentioned by Dr. Patterson were Drs. Lamb, Cline and myself. Dr. Lamb and I spent all one day looking into the question, making seven post mortem examinations in all. We looked carefully for necrotic enteritis and stomatitis and found none. We did, however, find distinct lesions of cholera, and as a consequence made the diagnosis of chronic cholera. The owner told us that some of the pigs had received serum only. from which we deduced that these hogs might have broken after the immunity from the serum wore off.

Dr. Herman—In such cases as those described I give a mixed bacterin containing staphylococcus and suisepticus in addition to the serum. This costs from 7 to 15 cents additional for each animal, but I believe is worth the price as my results have been more favorable since I have followed this method.

Dr. Lehnert—We had a case similar to this in Wyoming where a number of hogs died following vaccination. It has been variously diagnosed as cholera and hemorrhagic septicemia. We tried to isolate the hemorrhagic septicemia organism but failed. We came to the conclusion that the disease was in reality cholera, due either to an inactive serum or a too active virus.

Dr. Herman—In my practice many suckling pigs are lost, showing minute lesions in the kidney and occasionally in the lungs. Smears from these animals show bipolar organisms. In many instances the lesions continue even after immunization against cholera. As a consequence, I am satisfied that the disease is hemorrhagic septicemia.

Dr. Glover—It seems to me that we are very much in the dark regarding a proper diagnosis of these diseases in hogs. We have at present time a condition in the San Luis Valley which some think is cholera and some necrobacillosis. There is always a question which is the proper diagnosis. Some years ago, I visited the penitentiary, not through compulsion, but by invitation. I found lesions which indicated either cholera or necrobacillosis. As a consequence I recomemnded the use of serum or

the immediate shipment of the hogs to market. Neither recommendation was carried out but the hogs stopped dying. The next year, the warden feeling that he had been so successful the year before took little cognizance when the hogs became sick. This time however, nearly all of the animals died.

DISCUSSION ON HEMORRHAGIC SEPTICEMIA IN SHEEP

(This discussion followed a paper by I. E. Newsom on this disease. The paper is too long to print here but was read at the Philadelphia meeting of the A. V. M. A. and will probably be published in the Journal of that Association.)

Dr. Herman—The bipolar organism is causing us a great deal of trouble in this state, not only among sheep but also among hogs and cattle. I find it very difficult to convince the owner that his animals are dying of hemorrhagic septicemia, and not from poisonous plants. Apparently the organism is universally present and only assumes virulence when for any reason the metabolic equilibrium is upset. I find the diagnosis easy, both by symptoms and lesions. Three years ago there was a very serious outbreak in my district. The weather was very stormy. The loss was heavy. I explained to the owner that in about seven days that he would likely have a further loss which prophecy proved to be true as his second loss came in about that time. I have used vaccine on many herds with considerable success. I gave 5 cc. of the bacterin to the sick animals and 2 cc. to the well. The losses usually cease very quickly after this treatment. I find that bacterin increases the disease in the sick animals and consequently would recommend the use of a serum and nuclein. I find this treatment also good in cattle.

Post mortem findings are usually a hemorrhagic tracheitis, glands of the throat are enlarged, the sinuses of the head are infiltrated. The lungs all show hemorrhages or all stages of pneumonia. The thymus is usually hemorrhagic and there is inflammation of the mucous membrane of the intestines which is responsible for the diarrhoea. Petechiae and ecchymoses are usually to be found on the heart.

Dr. Stiles—A short time ago I made a trip to the San Luis Valley where I examined some 50,000 head of sheep and made 50 or 60 post mortems. These were of all ages from suckling lambs to adults. In the lambs the lesions were usually those of enteritis with some hemorrhages, or even pneumonia in the lung. I usually found the lesions more marked in the adult than in the lamb. In one instance the uterus of a pregnant ewe was covered with petechial hemorrhages. In another case the lamb died within two hours of birth and showed lesions of the disease. In most instances vaccination was reported to have met with satisfactory results. I have been able to do some bacteriological work and have isolated many cultures of a bipolar organism that showed virulence for guinea pigs. From my experience I do not believe tapeworms to be a factor in the disease.

Dr. Lamb—I am very much at sea regarding all this loss in sheep. Where I find typical lesions, I have no hesitancy in advising vaccination but in so many instances I post one animal after another and find no lesions of hemorrhagic septicemia. This is particularly true in animals that are slaughtered for the examination. Where I do not find definite lesions, should I advise vaccination? In some instances a change of pasture has resulted in the loss ceasing.

Dr. Harrington—I recently visited a flock where there was considerable loss from what appeared to be this disease, but the loss came on as the result of the change because the animals were brought in from the range to a pasture on the home place. I do not believe that change of pasture in itself would be of much value.

Dr. Kinsley—I have had much to say in recent years regarding diseases caused by organisms of the bipolar group. In fact, many of my friends think I have gone a little too strong in attributing diseases of hogs and cattle to these organisms. I must confess, however, that I have heard more diseases attributed to bacillus ovisepticus this afternoon than I have ever heard mentioned in connection with this organism before. Now we appear to have this disease of pregnant ewes in Missouri, but we do not attribute it to the bipolar organism. We have made some 20 trips to see cases of this kind and have found blood inoculations to be universally negative. There seems to me no satisfactory evidence that this disease is related to hemorrhagic septicemia. We find that it occurs in ewes that are quite fat and are highly fed. Furthermore, we find that when the feed is diminished to about 50 per cent the loss stops. We have had much hemorrhagic septicemia in Missouri, and especially in stock that passes through the public yards.

Tapeworms may not cause you any particular trouble in Colorado, but I am quite sure they do in our country. I recently visited a place in Arkansas where goats were dying in considerable numbers. Parasites were extremely numerous and tapeworms were present in large numbers. I was satisfied that the intestinal parasites were at the bottom of the trouble and advised he giving of worm medicines. I think it quite possible that when the vitality is lowered from parasites that animals might be rendered more susceptible to other diseases.

Dr. Lamb—Dr. Kinsley, would you advise vaccinating sheep before being placed in the feed lots in the fall?

Dr. Kinsley—Yes, I have frequently advised immunization under such circumstances as I consider it cheap insurance.

Dr. Jensen—Many times we find that we are unable to find the bipolar organisms in smears, but when the material is injected into rabbits, we find that the organism was present.

Dr. Stiles—I find that the organisms can be rather readily isolated from lymph glands. I know of one instance where 334 ewes and 100 lambs were vaccinated, and were then turned into the same pasture. Three of the ewes died but there was no further loss of lambs.

DIAGNOSIS OF SWINE INFECTIONS

By A. T. Kinsley, Kansas City, Missouri.

The topic assigned on the program will probably not exceed from ten to twenty hours for its discussion. However, the present discussion will be confined to the differential diagnosis by autopsy of a few of the important swine diseases.

First of all, hog cholera.—Lesions: In peracute hog cholera it is not uncommon to find absence of lesions. In other words, as stated on differ-

ent occasions by some few men, pure hog cholera is a lesionless disease. Whether this is a fact or not necessitates further investigation. It is certainly a fact that occasionally one or two animals that die in a herd of hogs, of hog cholera, show absolutely no macroscopic lesions. The lesions usually consist of petechial hemorrhages of the mucous membranes, especially beneath the serous membranes, such as the epicardium. There is usually a congestion, and frequently hemorrhages into some or all of the lymph glands of the body. Then there are the lesions of the spleen which in acute or subacute hog cholera is engorged tumified, and shows petechial hemorrhages on its under surface. Some of the most acute cases of cholera are so rapidly destructive that there are no lesions of the spleen. Next in frequency is the change in bone marrow consisting of darkening due to hemoglobin and perhaps hemorrhages into the bone marrow itself. The lesions in the skin consist not only of congestion but very frequently of hemorhages and sometimes inflammatory disturbances. Very commonly there is found in a hog dead of cholera, a pneumonia, croupous in type, involving the cardiac lobes of the lung. The foregoing are the usual lesions thought of as indicating hog cholera.

Hemorrhagic septicemia of swine, or swine plague.—I believe it is almost universally accepted that such a disease prevails in this country. It is becoming more extensive, or possibly the veterinarians are just a little better on their diagnosis, and are recognizing a disease now that has existed for several years. In the very acute type of the disease there are found petechial hemorrhages beneath the mucous membranes, serous membranes, and the skin. These lesions are practically the same as are found in hog cholera, and the dimensions of the hemorrhages are practically the same. If there are no further lesions it is not possible to distinguish between hemorrhagic septicemia and hog cholera by autopsy.

Hemorrhagic septicemia, or swine plague, is not manifested, as a rule, in the manner mentioned. The usual type as found in this country consists of a subacute or chronic affection, in which the lung is primarily involved, and in which the lesions essentially consist of a typical catarrhal pneumonia, evidenced by the disease being in different stages of progress in the lung; and also by more or less of an interstitial infiltration and by a fibrinous pleurisy, so that when one examines the lung of a hog dead of a subacute or chronic swine plague or hemorrhagic septicemia, a mottled lung is presented. Some areas are in congestion, some in red hepatization, others in gray hepatization, and in a few instances some will have progressed to the extent that they are necrotic, which is a common condition in swine plague pneumonia. In some instances the necrotic areas and abscesses mentioned wil have burrowed through and produced a necrotic pleurisy in addition to the fibrinous pleurisy I have mentioned.

Chronic hemorrhagic septicemia in swine is primarily manifested by a typical fibrinous pneumonia, and, depending on the stage of the disease, there may be a purulent or septic pleurisy, due to the discharge into the pleural cavity.

Necrobacillosis is a third condition in swine that is relatively common. This is manifested in a variety of ways, as stomatitis, pneumonia, enteritis, hepatitis, rhinitis and perhaps also dermatitis and other conditions.

The type of necrobacillosis most likely to be confounded with other conditions, and particularly hog cholera, is necrobacillosis of the intestines, which is manifested by lesions that were commonly called hog cholera ulcers, or Welch Buttons by the pioneer veterinary practitioner. This lesion is most common in and around the head of the cecum and sometimes ex-

tends back into the ilium. The lesion consists of a circumscribed mass varying in size from one eighth to three fourths of an inch in diameter, gray or brownish-gray in color, and of a mealy consistency. Necrobacillosis is also manifested by diphtheritic inflammation, which is an organized, coagulated exudate so firmly adherent to the tissues that it is not possible to remove it without detaching the mucous membrane or a portion of the mucous membrane. There should be no reason for confusing this with hog cholera. If there are any of you who still hold in mind that the old so-called hog cholera ulcer typifies hog cholera, forget it; because necrobacillosis lesions are found in hogs in which there is no trace of filterable virus.

Septicemia or acute necrobacillosis.—This sometimes occurs and is manifested by hemorrhage. This type of hemorrhage of septicemia necrobacillosis differs from hog cholera or swine plague, in that the hemorrhages are larger and less distinctly circumscribed, and not usually difficult to distinguish from hemorrhages of other diseases.

Two other diseases of swine should be mentioned. One of them is tuberculosis. Specimens are frequently received for diagnosis of tuberculosis of swine. There should be no confusion of tuberculosis with any other disease. Tuberculosis in swine is characterized by the tubercle, which early becomes calcified. This disease is much more common in swine than the ordinary practitioner has been led to believe. Frequently you will find a farm where there are tubercular cattle and swine, and some have been guilty of calling the condition in hogs, hog cholera, without autopsy.

Another condition that might be mentioned is pulmonary strongylosis. This disease is manifested by lesions in the posterior part of the greater lobe of the lung. They will extend from there forward, and finally produce a catarrhal pneumonia of the larger lobe of the lung..

Many infective diseases of swine have not been mentioned in this discussion. The foregoing statements have been made with the intention of stimulating a discussion on diseases of swine.

DISCUSSION—Dr. Jensen—After hearing so much discussion regarding cholera I find that there is a general reversion to the original thought.

I was in Nebraska at the time Dr. Billings did much of his work on hog cholera when bacillus cholerae suis was supposed to be the cause of the disease. I was at Ames when Dr. McBride announced to us privately one morning that he had proven that cholera could be transmitted by filtered blood. Just previous to that time, much attention has been given to what was called the belted coccus. After all these years, it still seems that pure cholera is very rare and that the secondary organisms are likely to be strong factors in the disease.

Dr. Harrington—In acute necrobacillosis is the organism to be found in the blood stream?

Dr. Kinsley—Yes.

Dr. Stiles—Just how much work has been done on the bacillus suisepticus in its relation to diseases of hogs?

Dr. Kinsley—There has been little success in producing hemorrhagic septicemia in hogs by means of pure cultures of bacillus suisepticus.

Dr. French—Just how long does the immunity last when the serum alone method is used?

Dr. Harrington—In small pigs till weaning, say eight weeks old.

Dr. French—I understand that Dr. Dorset says it is good for ten days.

Dr. Stout—The conditions in the San Luis Valley look good at the present time. The disease there appears to have been of a mild type and while there has not been much loss the disease continus to hang on. It has been frequently diagnosed as due to other organisms than cholera, and I find the general tendency among owners is to think that their hogs are dying of pneumonia or some other disease. However, we find that these conditions yield nicely to vaccination, and that following the administration of serum and virus the disease stops.

Dr. Harrington—In my work in the packing house, I probably opened as many as a thousand hogs having cholera. We believed that there were no conditions showing petechial spots in the kidneys, except where the hogs had cholera.

Dr. Herman—I think it should be brought out that our serum is not entirely a cholera serum. It is polyvalent. Unless the virulent blood is filtered it is probable, too, that there are introduced into the hyperimmune other organisms than the cholera virus. Consequently we should get some protection against these other diseases as well as cholera. At least we find we often get results from the use of serum even though the secondary disease may appear to be uppermost.

Dr. Lamb—Does the administration of serum alone have any effect on a simultaneous administration later?

Dr. Kinsley—Serum alone gives a purely passive immunity; consequently the length of time which the immunity lasts depends entirely upon the elimination of the serum from the blood of the animal. I do not believe that the serum alone method is indicated except in a very few cases. The difficulty is this: If you give serum alone and at a later time give the simultaneous treatment in some cases the passive immunity remains to obstruct the action of the virus administered as part of the serum virus treatment. Therefore. I do not hesitate to say that instead of it being safer to give a dose of serum followed later by the simultaneous method it is apt to produce disaster, as many pigs will be only partially immunized following this method.

The double treatment is now known to be entirely obsolete because of the difficulty of determining at what time the serum and virus should follow the serum alone administration. It was not only more expensive but so much less satisfactory than the ordinary simultaneous method.

Regarding the dose of virus, it is my belief that if the protective dose of serum is given, you can give all the virus you want to without harm. I say give plenty of virus. I use 2 cc. as a minimum. There seems to be no one lesion that is pathognomonic of cholera. Cholera is only to be diagnosed as a result of careful observation, both of symptoms and lesions, and not based upon any single lesion or symptom.

Dr. Kinsley—(In reply to question as to losses from cholera in former years as compared with the present)—Ten years ago we lost 180 to the thousand. Now 42 to the thousand.

Dr. Glover—It seems to me that with all our knowledge of cholera, that we have more cholera than ever. I am wondering if the promiscuous injecting of virus has not only spread cholera but is also responsible for the outcropping of these other diseases. Some years ago these other diseases were practically unknown. Cholera was a definite disease and appeared to be

uncomplicated. Now we have so many complications that we do not know quite know where we are. Wouldn't it be better to get back to the original thought of cholera as being a single entity.

Dr. Kinsley—It does not seem probable that these secondary diseases have increased but only that we see them more clearly. At one time they were all called cholera, now we know that there are several diseases which we formerly called hog cholera and we should not hesitate to attempt to differentiate between these various maladies.

THE INTRADERMAL TEST FOR BOVINE TUBERCULOSIS

By Dr. A. W. French, Wyoming State Veterinarian.

(A paper based on actual experience with the intradermal test, as applied to dairy cattle in the State of Wyoming.)

While the subject of tuberculin testing of cattle is an old one, the method of intradermal testing is comparatively new; at least it has not been in general use and is perhaps not thoroughly understood by all of us.

For the past year, we have been using it in Wyoming in testing the dairy herds of the state and thus far we have gotten very gratifying results. We began testing one year ago and up to date have tested approximately 12,000 head of cattle. Out of this number we have found sixty head of re-actors. Most of the re-actors were given the thermal test, immediately following the reaction to the intradermal test and in every case, a good reaction to the thermal was found. The thermal test was given inside of from four to seven days following the intradermal.

The intradermal test is a quick method. We have tested as high as 200 cattle in one day, belonging to several different owners. This, of course, where people live close together and the herds numbering from twenty cows on up. We inject the cattle going down the line for two days; then on the third day we go back to the starting point and read the results of the two days testing and record the same. If we confined ourselves to the thermal test in this work, one herd is all we could handle in a day, even though the herd contained only six or eight head.

At the last session of the Wyoming legislature, we were fortunate in getting a bill passed to compel owners of dairy herds of cattle to submit them to the tuberculosis test and in the bill it provides for all dairy owners to be granted a permit to sell their products until such time as we can reach them and test their herds.

Upon arrival at a dairy owner's place, should he refuse to have his cows tested, we take up the permit. In this way, it is no trouble to convince him that in order to sell his milk and cream, he must submit to the test.

All re-actors are appraised, condemned and destroyed. The law calls for the burning of the carcass, but a modification is allowed where there is little or no fuel, in that the carcass may be buried, provided it is covered with at least two feet of earth.

While the United States Government, up to this time, has not given any recognition to the intradermal test, they are beginning to lean toward it and are now ready to co-operate with us in Wyoming; not for inter-state shipments, but to help in cleaning up the tuberculosis in the state.

The technic for giving the intradermal test is as follows: The tuberculin is injected into the deeper layers of the skin, in 1-20 to 1-4 cc. amounts, depending on the concentration of the tuberculin used. A hypodermic syringe with a short needle point should be used. We use a 24 gauge needle with a point 3-16 to 1-4 inch in length similar to those used by dentists. The most suitable place to make the injection is in one of the folds of the skin, on the under side of the base of the tail. Standing against the right flank of the cow the left subcaudal fold is grasped between the thumb and first two fingers of the left hand and the needle inserted into that portion of the skin held between the thumb and fingers.

The dose, if properly placed can be felt as it is expelled from the syringe into the layers of the skin. It remains there as a small lump, after the needle has been removed. Don't try to inject too near the surface of the skin. In case the needle is of the proper length, say ¼ inch, there is little danger of going completely through the skin. It is well to inject about two or three inches down the tail from the anus. At this point, the tail forms a background, which renders the local re-action prominent.

A positive intradermal re-action is indicated by a thickening of the sub-caudal folds, or by the appearance at the point of injection of a characteristic sensitive swelling, from the size of a hazel nut to the size of a hen's egg. The swelling may be either soft and oedematous or hard and inflamed. The majority of re-actors are seldom clear before the 12th hour, but continue to increase until about the 72nd hour. This swelling is very plain at the 48th hour, but should you be testing in an infected herd, observation be made as late as the 72nd hour. Small indurations about the size of the head of a match may occur at the point of injection, occasionally in non-reacting cattle, but these do not last long and should not be considered in determining a re-actor.

In judging a local swelling, the observer should depend more upon the appearance, shape, sensitiveness and location with respect to the exact point of injection. Experience alone can teach an operator how to be certain of the positive re-action, when the swelling is small.

When properly applied, I consider the intradermal test for wild range cattle, far more reliable than the thermal test. Excitement does not have to be considered and we all know how difficult it is to get the normal tempermature of cattle that are not used to being handled.

The identity of each individual animal does not have to be kept while testing with the intradermal test, as it does in the thermal test. Put them through the chutes and inject them and in from 48 to 72 hours drive them through again and make your observations and record your results.

DISCUSSION—Dr. Lamb—The Wyoming law as given by Dr. French has also been felt in this state since a number of our dairymen ship milk to Cheyenne. As a consequence it has been found necessary to apply the tuberculin test to many dairies in the vicinity of Brighton in order that the milk from these cows would not be shut off from the Wyoming market.

Dr. Kinsley—The intradermal test is much superior to all others for application in public stockyards, since under such conditions many animals show a rise in temperature due to the excitement. I remember in one instance a lot of cattle was held in the Kansas City yards for thirty days in order that the temperature should return to normal, so that the thermal test could be applied. It is our experience in Missouri that it is as accurate as the subcutaneous method and is much more convenient to use.

ROUND TABLE DISCUSSION—"ON THE RELATION OF THE COUNTY AGENT TO THE VETERINARIAN."

Dr. Glover in the chair—While in the east there has been much agitation regarding the veterinary activities of the county agents, there appears to have been no misunderstanding in this state. We believe the reason for the satisfactory condition here is that the county agents meet semi-annually with the veterinarians of the college where their activities in this line are outlined and they are cautioned not to engage in treatment of disease, unless their knowledge is sufficient for the case in hand. We realize that since the county agent is put in his place, because of the advantage he can be to the farmer, that he is often tempted to try to save the farmer a veterinarian's fee. As a consequence, he carries a stock doctor book and when he finds an animal sick, he is apt to get it out and copy a prescription which he gives to the farmer. However, there does not seem to be much of this trouble in our own state. There are several factors to be taken into consideration in this discussion and one of them is the efficiency of the veterinarian. We believe that the veterinarian will be used in a community in proportion to his ability to deliver the goods. First class professional men will have no difficulty with the county agents nor with the non-graduate practitioner. If there is any friction between you and the county agent, go to him in a gentlemanly manner and talk it over and I am sure that it will be readily arranged. Most of the troubles in this respect are due to the failure of understanding. We should remember that these are war times and that veterinarians are very scarce. As a consequence, county agents should do all in their power to save live stock. There is, however, one basic principle which should guide him and that is, that a man not trained to make a diagnosis should not prescribe treatment.

We have with us today Dr. H. T. French, who is the head of extension service in Colorado, and who has supervision over all county agents. We will now hear from Dr. French.

Dr. French—I am pleased to take up this question with you today as I appreciate that a thorough understanding of this matter will be helpful to both the county agents and veterinarians. I remember that when I was in school there were only two veterinarians in the state of Michigan. One of these received $50 a day for coming down to the agricultural college and giving us a few lectures on veterinary subjects. In many places veterinarians are not to be obtained, and those with any veterinary knowledge whatever are necessarily much in demand.

The function of the county agent is entirely educational. If he carries this out as he should, it will stimulate the work of the veterinarian rather than interfere with it because it is a well known principle that the veterinarian's most satisfactory work is with the farmer who is best educated. I remember in my own experience as a county agent that there were no veterinarians available in most of the districts. A price of $50 a visit was prohibitive and for this reason it became necessary to do what I could in the way of assistance. It may not always have been of the best, but it was the best that was available. When I was teaching in Oregon and Idaho, I carried a course of lectures in veterinary medicine for several years, but it finally became such a burden that it became necessary to quit. County agents are not instructed to help the farmers treat their diseases. They are definitely ordered to notify the state veterinarian wherever there is a possi-

bility of contagious disease being present. They are then to leave the whole matter in the hands of the state authorities, but they are authorized to render these authorities every assistance which is in line with furthering the education of the farmer and stamping out the disease.

I believe the agent might give demonstrations in inoculating hogs, if authorized, by the local veterinarian. Farmers need advice on sanitation and many other matters relating to conservation of live stock and these matters can be well handled by our county agent. We believe that where no veterinarian is present, the county agent should render every assistance possible, remembering that the essential object is to save the animals, if this can be done.

I think that the lack of confidence which some farmers have in the veterinarian is due to the old time horse doctor who was long on talk and very short on performance.

The county agent can be of great assistance in steering farmers away from such individuals and to the reputable professional men. There seems to me then to be no reason for any friction between the county agent and the veterinarian. The county agent's duty is particularly to increase the farmer's knowledge, but he is not authorized to treat disease when in any way it interferes with the activities of the reputable professional men.

Dr. Lehnert—I have been reading much of the recent discussion in the American Journal of Veterinary Medicine relative to this subject. Since I have been in Wyoming there has been little complaint regarding pernicious activity of the county agent. These men are all sent to me for interviews before they go into the field, and I believe our little talks have been very valuable in their subsequent relations to the veterinarian. There are many places in Wyoming where there is no veterinarian within one hundred miles and under these conditions the county agent must necessarily have greater leeway in his veterinary activities than would be the case if there were good practitioners to be had from a reasonable distance.

I find that some of our men have had some training in veterinary medicine and consequently can be of material service in this respect. Others however, have had none whatever. I do not agree with Dr. French that the county agent should administer hog cholera serum and virus, but I advise all of our county agents to depend upon the veterinarian, if available, to do all of this work. If, however, as occurs in our state, there is no veterinarian available then the county agent must do his best, but he must understand that it is not his regular work. I believe our county agents can do a great deal of good and if they are properly trained, it will not cause trouble. Our state veterinarians could work with the county agents to advantage to both.

Dr. Dickey—What I have to say has no reference to our own county agent as we at Colorado Springs have the best one in the United States. However, in many counties the county agents have not only overstepped their bounds, but are actively pernicious. They should confine their efforts entirely to education and particularly along the line of handling the soil and raising crops. They should not be encouraged to give advice on breeding or feeding of animals, nor on the treatment of any disease of animals. I can see why the farmer uses the county agent when they get a sick animal rather than the local veterinarian. If they call the professional man, they have to pay him; whereas the county agent is paid by the government. The practitioners are easy on this matter. They have the remedy in their hands and should not hesitate to use it. Any man who practices without a license, whether he be a county agent, or what not, should be prosecuted to the limit of the law.

Dr. Brown—I find that the easiest way to handle this problem is to go to your county agent if you have any objection to his activities and talk it over with him. In my county, we have a government man who printed in the paper a long list of prescriptions for various maladies. We also have a county agent. I went to both of them, talked the whole problem over and since that time we have had no further difficulty. You will find that these men are amenable to reason, and they do not wish to interfere in any way with the local veterinarian. In fact, they have been of great assistance to me because in many instances clients have been referred to me by them.

Dr. A. W. French—I think if it takes three years to get a veterinary education that no one should be allowed to practice veterinary medicine who has not had at least a three-year course in this work. It is absurd to think that a county agent can by virtue of having had a few lectures while at college treat diseases and engage in veterinary practice. My attitude is that they will be prosecuted if they attempt to practice in Wyoming.

Dr. Glover—It always takes two to make a fight. The inclination is to magnify our own side of this problem. We must remember that we are out to save food, and that while the county agent should not engage in veterinary practice, yet veterinarians should not complain if they do everything in their power to conserve the live stock of the country.

Dr. Jensen—You men do not know the whole story of this problem. We have looked into the question from all standpoints and I know that many of these agents are pernicious in their activities. They are sent out by the U. S. Government to assist the farmer and now many of them are commercializing their position by selling veterinary remedies and instruments to the men that they are supposed to serve. We have had many communications from these men which show that they are entirely ignorant of the diseased conditions with which they think they are dealing. Many of them take a direct stand against the local veterinarian and attempt to supercede him entirely by furnishing medicines of all kinds directly to the farmer. Some of them call meetings apparently for the purpose of spreading information and wind up by talking a lot of veterinary remedies or instruments. They pass upon all sorts of contagious diseases even in direct contradiction to the reputable veterinarian. I tell you they are a menace and should be curbed.

Dr. H. T. French—Our county agents in Colorado have been very active in many other lines than those of controlling diseases. Many of them are placing brood sows and pure bred cattle in the counties where these never before existed. They are active in forming beef clubs, pig clubs and calf clubs. The Chief of the Bureau of Animal Industry says that the county agent can not afford to inoculate hogs because they have so many other things to do. Their field is advice and not practice.

HOG CHOLERA—ITS CONTROL AND ERADICATION

By C. F. Harrington

In this paper it is my intention to deal with the variations from the classical type of hog cholera; complications that usually accompany and follow hog cholera; methods of control and eradication; dosage of serum and virus; and some late conclusions arrived at by Bureau investigators with reference to the infectiousness of the various secretions, the blood, the urine, and the feces of cholera infected hogs, and the manner by which hog cholera is supposed to be spread.

You are all, no doubt, aware that we have veterinary investigators who deny the existence of a chronic form of hog cholera. To my mind this is a dangerous stand to take, both from the standpoint of the practitioner who deals more or less with individual cases of the disease and from the standpoint of the authorities who look toward the complete control and eradication of hog cholera. The history of this disease discloses the fact that it appears in cycles of approximately ten years. The first period of exceptional prevalence reached it climax in 1887, the second in 1897, and the third reached its height in 1913 and 1914. Now the question arises: Where and how does the disease exist in the interim between these virulent outbreaks? In the light of the latest investigations, it does not seem probable that the infection dies out after each virulent outbreak, only to reappear at the next period in the same virulent form. And this seems more improbable when we know that the hog crop is practically changed every nine months.

I am sure, after examining the data from all over the United States, and after thorough field investigation that the disease exists in a very mild form thruout the country, here and there at time springing into the virulent type. Sometimes the disease is so mild and confusing as to almost defy a positive diagnosis. And this is especially true when one or more of its accompanying complications exist at the same time. I believe, as a rule, that the veterinarian is too easily tempted to jump at conclusions, when dealing with the diseases of swine. For instance, if he is called to investigate trouble in a herd and sees necrobacillosis he is inclined to call the trouble necrobacillosis and let the investigation rest there. This is often a serious mistake and often leads to embarrassment, when later he is called back and finds hog cholera has spread through the whole herd.

As a usual thing it is not difficult to get the hog raiser to vaccinate and to take other precautions, if he is convinced that the disease is actually hog cholera, or that his neighbor's herd has hog cholera, but if the herd is affected with the mild form of the disease, and if in addition one or more of the complications is present, then the hog raiser is skeptical. We will take an example: Suppose, for instance, that there exists in your territory some trouble among hogs, the manifestation of which is somewhat like the following: The trouble is found mostly among pigs from the suckling age to twelve weeks old. You are called out to some farm, and the owner tells you that his pigs are not doing as well as they should. Some of them have a hacking cough, especially when roused from their nests. He has called in his neighbors, and, while they have been unable to convince him just what the trouble is, they have convinced him that it is not cholera. He tells you that the pigs have good appetites and even feeds them to prove his assertion. The pigs seem greedy for their feed. He tells you that the pigs get plenty to eat, but that the food does not seem to put on any fat. The pigs do not show alertness. The eyes are watery and some of them have a mucopurulent discharge in the corners. Some of them may be scouring, but this is not at all constant. The main feature is a general unthriftiness of the bunch. Further questioning brings out the fact that a few of the pigs have died. maybe at a considerable length of time apart. He may have lost only two or three, or perhaps none, and some of the pigs have died at or soon after birth. You now take temperatures at random through the herd, and find them running almost normal or slightly above normal—one or two possibly as high as 106° F. If you rest your investigation at this point you are very likely to conclude that the trouble is not hog cholera. If you are fortunate enough to get the consent of the owner to hold two or more postmortems, you may decide as to the cause of the trouble, though this is not always en-

tirely satisfactory. The lesions are not always prominent. In fact they are remarkably few at times. There may or may not be petechiae on the serous coat of the kidneys. As a usual thing you will have better success by splitting the kidneys just to one side of the median line and examining the calyces and cortex. Here, if there are any at all, you will, find sharply defined petechiae.. There may or may not be petechiae and consolidation in the lung tissue. Sometimes the stomach lining shows hemorrhagic areas or patches. Now in a case like the one cited above the veterinarian is often at a loss to arrive at a diagnosis. Sometimes it is necessary to observe the herd over a considerable period, before a conclusive diagnosis can be made. But our experience has been that extra large doses of serum and the use of virus often produces remarkable results. This success, however, is largely dependent upon whether or not necrobacillosis exists as a complication, and if so upon the extent of the same.

The case cited here is almost typical of the trouble that exists widespread among pigs and hogs in this country at the present time, and for the past year. Here and there we have watched this trouble over a considerable period of time and have seen it spring into virulence, killing with great rapidity, both pigs and older hogs. Blood from pigs affected in this manner will produce the same trouble in other susceptible pigs, so also will contact. Results from vaccination are not uniformly satisfactory. Before any prognosis is made the investigator should ascertain to what extent necrobacillosis is an accompaniment. He should post a pig that shows labored breathing to see to what extent the lungs are infected, and he should post one showing diarrhoea to ascertain to what extent the bowels are infected. Much will depend on this.

Now as to the complications that accompany and follow this type of hog cholera: The one cited already, necrobacillosis, is in my experience the most prevalent. It appears in two main forms: that which affects the lips and mouth of very young pigs, bullnose, and the other which manifests itself in necrotic enteritis. The latter form, to my mind, is the worse to deal with. I have posted pigs that showed unmistakable lesions of hog cholera along with this necrotic enteritis, then vaccinated the pigs with heavy dosage of serum, also using virus. A month from that time I have held postmortems again in this herd and found the lesions of hog cholera gone, but the necrotic enteritis still progressing and killing the pigs. This is what makes the results of vaccination so uncertain.

The next important complication is haemorrhagic septicaemia. This may be present with hog cholera, or may appear after hog cholera has disappeared from the herd. It usually manifests itself in the form of necrotic pneumonia. This disease may also appear independently of hog cholera. We sometimes see it appear in a herd a month of more after immunization. The hogs suddenly go off feed, show a high temperature, which comes on suddenly and disappears as suddenly. Postmortem almost always shows necrotic pneumonia. The lesions of hog cholera are absent. The trouble seems to be almost entirely confined to the lungs. These two complications are, it seems to me, the only ones worthy of mention.

Now as to control and eradication. It is evident that any plan for the control and eradication of hog cholera must take into account a thorough educational campaign first of all. Counties and territories should be organized, so that they may act in unison. The names of the officers of the organization should be published in the home papers and as much publicity as possible should be given to all its meetings and proceedings. All available pamphlets and other educational literature should be

mailed to these officers, so that they may feel that we are taking interest in their work. Arrangement should be made to have some central point to which to forward all reports of the disease. Then educational meetings, preferably with the use of a stereopticon lantern and slides, should be held at various points throughout the territory. Then a Bureau veterinarian, or a county veterinarian should be designated to answer calls for help. The duties of a Bureau veterinarian are to answer calls and make a diagnosis and give advice. He is not to engage in any practice, such as vaccination. He cites the farmer to the nearest veterinarian, who does the vaccination. Many times the farmer will not give notice of trouble among his hogs, because he thinks the authorities will make trouble for him. He will not call a practitioner on account of the cost. This, however, may be easily overcome by the Bureau veterinarian, who goes about the country looking for such cases.

Of course, the ideal organization for the control of any disease would be one such as exists in the San Luis Valley, but if we are dealing with hogs only, then we would have difficulty in forming such an organization in other parts of this state, because hog raising is not carried on to a sufficient extent to warrant it; but it seems to me it would be extremely profitable for any community to organize itself under that plan for protection for all animals. So much for the educational plan. After the people are fully aware of what is to be done and the manner of doing it, then we must have some definite plan for carrying out the work.

I am strongly in favor, wherever an outbreak of hog cholera starts, of protecting all surrounding herds by the double method of immunization. This has proved to be most satisfactory in general field work. Farmers should be warned by post card whenever this disease breaks out in their community. Care should be used in recommending sanitation, not to seem to be radical. Oftentimes a hog raiser is told to change feed or pasture or hog houses when it is absurd to make such a request. The trouble with us as a rule is that we have often been unable to see things from the stockman's point of view. Whenever hog cholera breaks out on a farm, we must consider that farm to be infected, and I believe we should warn the man that it will be unsafe to try to raise pigs there after that without protection. All suckling pigs should be given a dose of serum to hold them over until weaned; then they should be given the double treatment. All new stock should be given the double treatment. It is well, on general principles, to get as much sanitary work done on an infected farm as possible, but I believe we should insist that all dead animals should be absolutely destroyed. So much for control and eradication.

Now as to the dosage of serum and virus. I am satisfied that a whole lot of our earlier trouble was in not giving sufficient dosage of either serum or virus. I believe that we should never give less than approximately ½ cc. of serum per pound weight up to eighty pounds for well pigs. I think we are also safe in establishing 100 cc. of serum as our maximum dose in well hogs. Some veterinarians and hog raisers are still of the opinion that the hog must show some sign of sickness, in other words, show a reaction, after treatment, to make the immunity effective. I think this is a very serious mistake, and can only come from an insufficient dose of serum, or faulty methods. Experience has proven that hogs may be successfully immunized without showing any reaction whatever. Whenever a hog shows reaction he is spreading infection, which is to be deplored. Such cases as this have caused many farmers and some veterinarians to look upon the double treatment with suspicion. I also think we should get away from the idea that we may only give small dosage of virus with safety. My experience, and the

experience of many others, has been that 2 cc. of virus should constitute our minimum dose. This is presupposing that we always give sufficient dosage of serum. We should always understand, however, that vaccination is not 100 per cent perfect. Therefore we should formulate some plan so that we may minimize the danger of spreading infection from the small per cent that break after vaccination. My plan in this has been to advise and insist that all hogs treated by the double method shall be held to themselves for a period of 21 days. If a hog or two should break after treatment, the infection they spread will be confined to a small area, which can then be cleaned and disinfected. I am firmly of the belief that if some of these things were embodied in a law they would prove profitable to the hog raisers of any state. For all infected herds the dosage should be increased by one half.

It seems to me that here would be a good place to take up some of the questions that are continually arising in the field.

I.—Can sows, heavy with pig, be safely vaccinated?

2.—Are pigs from a sow, immunized after pregnancy, immune from hog cholera?

3.—Are pigs from a sow, immunized before pregnancy, immune from hog cholera?

4.—What is the right age for immunizing pigs?

I will now read from "INVESTIGATIONS CONCERNING THE SOURCES AND CHANNELS OF INFECTION IN HOG CHOLERA."

A PROPER FEE FOR THE USE OF BIOLOGICS

By E. E. Tobin

There seems to be more or less discussion among practitioners as to the proper charge to make on hog cholera vaccination as to whether or not we should receive a commission on serum as well as making a charge for the administration of same.

There are probably as many different prices charged as there are serums used. As near as I can find, the majority of veterinarians have been charging 1½ cents for serum and 10 cents per head for administration plus mileage or other necessary expenses. Now that serum has cost all the way from 90 cents to $1.50 per 100 cc.—some serum has cost even $2.00 per 100 cc.—there are practitioners that have been getting 2 cents for serum and 10 cents per head and mileage. Others have made a flat rate of $1.00 more or less for each hog, that of course including everything. That is very profitable on pigs but would not cover the cost of serum alone on large hogs. One practitioner that I know of, was charging 1 cent per pound. In some cases his ideas might work out but in a majority of cases there would be nothing in it by the time the hog raisers would argue about each pigs weight.

We have two things to take into consideration. They are the advance in price of pork for one, and advance in price of serum and labor for the other.

Only a very few years ago hogs were selling for 3 to 5 cents per pound. Less than two years ago, 10 cents was the top price. Now they are bringing $16.35 a hundred. Therefore a farmer is taking a bigger chance by not vaccinating and it is worth more to protect a 16 cent hog than it was a 5 cent one.

The better grades of serum are also advancing. They now cost us from ¼ to ½ a cent more than they did two years ago. Living expenses such as food and clothing are costing about twice as much as formerly. Every other line of business has advanced the price of labor and material. We have to pay them, why should we stay in a rut? Instead of making the same as we did two years ago on vaccination we are making less at the old rates.

I believe we should make at least ¾ of a cent on serum on top of charge for administering same. Some places they get 25 cents a head for injecting the serum.

Since the government has taken over the supervision of manufacture of biologicals, results have been more satisfactory. Before that time manufacturing concerns put out everything that would sell regardless of consequences and the hog industry has suffered as a result. Hog raisers who vaccinated then and had heavy losses hesitate about going into the business again. They need educating and one way to do that is to use the best serum when vaccinating and make them pay for it so you can afford to take time and do good work.

The blackleg vaccination is steadily slipping out of the hands of veterinarians in this country. The products have been put in the hands of druggists and stockmen. We can buy the products cheaper than stockmen and when employed to do the work, we should charge a good fee for administration. Sooner or later I hope to see the time stockmen will be glad to employ veterinarians to vaccinate their cattle as results are going to be poorer with the Filtrates and Aggressins, etc., in the hands of laymen than Pills ever were.

SOME SUGGESTIONS ON VACCINATING HOGS

A. G. Wadleigh

This paper will be confined largely to the practical side of this subject as well as my own personal experience. While I do not claim much originality in my methods, yet I have had an opportunity to study the results of my work and feel that I can safely recommend these methods. And if anything I have learned through bitter experience will be of any help to others or prevent them from falling into some of the pitfalls I shall be more than pleased to offer these few suggestions.

My experience in vaccinating hogs has been quite varied and more or less extensive especially during the past year as I have vaccinated nearly fifteen thousand head during the last nine months under practically all kinds of field conditions and I believe I can profit in the future from mistakes I have made in the past.

There are many small details in vaccinating hogs that one can only learn from actual experience but there are a few general rules that must be adhered to it are to expect uniform results. I want to suggest four important rules and discuss them in the order of their importance.

1. Use plenty of serum and virus.

2. Use only fresh sterile serum.

3. Keep all instruments sterile.

4. Disinfect skin thoroughly at point of injection.

1. Use plenty of serum and virus. I believe if we had all been using larger doses of serum in the past there would have been fewer "breaks" after vaccination and the results from vaccinating against cholera would have been much more uniform. A full dose of virus is also very important not only for the permanent protection of the hog being vaccinated, but it is especially important in sows or female pigs that are to be kept for breeding purposes, in order to give their pigs the greatest degree of immunity up to the time of weaning.

I give 2 cc. to every pig that gets 30 cc. of serum. I also give both serum and virus to all hogs over weaning size including sick ones though I increase the dose of serum about 25 per cent on all sick hogs.

I am using the following dosage with mighty good results:

Suckling pigs	10-20 cc. serum	
20 to 30 pound pigs	1 cc. per lb. serum	1-2 cc. virus
30 to 40 pound pigs	30 cc. serum	2 cc. virus
40 to 50 pound pigs	35 cc. serum	2 cc. virus
50 to 80 pound pigs	40 cc. serum	2 cc. virus
80 to 160 pound pigs	½ cc. per lb. serum	2 cc. virus
160 to 200 pound pigs	80 cc. serum	2.5 cc. virus
200 to 300 pound pigs	90 cc. serum	2.5 cc. virus
Over 300 pound pigs	100 cc. serum	3 cc. virus

2. Use only fresh serum or serum that has been kept in cold storage. I think serum can be kept in good condition for a year if kept in cold storage continually, but it is poor economy and sometimes disastrous to try to keep serum any length of time without cold storage facilities, and especially partly used bottles. I do not consider broken bottles safe to use after they have been opened more than 24 to 48 hours if opened under ordinary field conditions.

When vaccinating do not leave serum exposed to open air either in cup or bottles but keep them covered in some manner as much of the time as possible because there is usually more or less dust in the air when working with the hogs as it is not always possible to have conditions ideal when vaccinating hogs.

3. Sterilize all instruments before using. This can be done without injury to the syringes by putting them in cold or luke-warm water and just bringing it to a boil then remove the instrument tray and allow water to cool somewhat before removing syringes.

When vaccinating every day, instruments should be sterilized each morning before starting out. Also in using glycerine as a lubricant for the syringes, make sure the glycerine is clean and sterile.

Do not use too large needles for two reasons, because the serum is more liable to leak out and because there is more danger of infection thru the point of injection. I had a beautiful bunch of abscesses in one herd after using a regular blackleg needle for calves.

I use a 16 gauge light weight needle on larger hogs and a 19 gauge needle on suckling pigs. Both needle and syringe should be dipped into an antiseptic solution after vaccinating each hog.

4. Disinfect the skin thoroughly at the point of injection before vaccinating. It has been my experience that it is impossible to disinfect the skin properly by washing with antiseptic solutions, and if the hogs are dry and reasonably clean, no washing is necessary, but just paint or swab the skin with tincture of iodine or some other reliable skin disinfectant. An alcoholic mixture seems to penetrate the skin pores and oils much better than an aqueous solution. Just at present, I am using a preparation called "dermatergen" with very good results.

In regard to the location of the point of injection I don't see that the location makes much difference so long as the hog gets the right amount of serum and it is absorbed in a reasonable length of time. I usually give the serum in the axillary spaces inside the front legs and the virus subcutaneously on the inner flank region.

In vaccinating heavy pregnant sows I inject the serum behind the ears and the virus in the flank region with the sow in standing position. I often vaccinate other large hogs this way when short on help though I prefer to give the serum in the axillary region as I think it is more readily absorbed.

In vaccinating suckling pigs I usually have the pigs suspended by the hind legs and give the serum in the flank region, making the injection through the flank muscles from the outside. By using this method and using a 19 gauge needle, the leaking out of the serum is largely overcome and this is quite a problem in real young pigs. The serum alone protects the pigs for about five or six weeks when they should be weaned and given the serum and virus treatment which produces permanent immunity.

In vaccinating any hog I always make a practice of pressing firmly directly over the point of injection. I do this for several reasons, first to force the serum away from the needle hole to prevent leaking, second, to help diffuse the serum through the surrounding tissues causing quicker absorption, third, it helps to close the needle hole and prevent infection, and fourth, I believe there is less danger of getting an abscess if there is not too much serum allowed to remain in one point.

Another point I want to mention is this, do not spill either serum or virus. If there is anything an owner dislikes to see it is this. He figures and rightly too that the serum will do more good on the inside of the hog than on the outside. The danger from spilling virus is obvious. This can mostly be prevented by holding the needle firmly on the syringe while making the injection, and by keeping air out of the syringe. It is also important to keep any air out of the syringes to be accurate in the dosage of both serum and virus.

Hogs should be given a laxative diet for a few days after being vaccinated and sick hogs should have a light laxative diet as long as they are sick. All hogs should have a reasonable amount of exercise after vaccination and kept away from filthy mud and water holes for at least several hours to prevent infection through the needle holes. In sick herds of course thorough disinfection should be carried out and all dead hogs burned.

In unthrifty herds it is a good policy to advise dipping to destroy lice and mange. Sometimes unthriftiness is due to worms in which case an anthelmintic should be prescribed.

If reasonable precautions have been taken I believe for all practical purposes there is no reason to expect any loss whatever from vaccinating a healthy herd of hogs or from cholera afterwards in that particular herd. On several occasions I have vaccinated part of a healthy herd with serum and virus and allowed them to run with the rest of the herd with no bad results. This is probably not a good practice however.

I have used considerable bacterin both for swine plague and for necrobacillosis but so far I have been unable to notice any beneficial results from either bacterin. However I would not condemn either of them just on my personal experience with them.

Personally I have just about come to the conclusion that either anti-hog-cholera serum contains more or less polyvalent properties or else many of the other swine diseases are simply secondary invasions following cholera. Possibly I am wrong but my experience and evidence has all pointed that way. For instance, I find that suckling pigs from immune sows possess an immunity to swine plague and necrobacillosis that pigs from non-immune sows do not have.

In either case I believe that if hogs are immune to cholera and kept under half-way sanitary conditions, they will be practically safe from disease.

We are continually learning more about hog cholera and its prevention so that what are modern methods now may be discarded in the course of a few years and we should all adapt ourselves to new conditions as they arise, profiting by the experience and mistakes of others, for in this way we will make progress.

CLINIC

(In charge of Dr. H. E. Kingman)

Case No. 1—Black two year old horse. Presented as ridgling. Operator—A. B. McCapes. Examination revealed the right testicle in the normal position and the presence of a severed cord in the left inguinal canal. The right testicle was removed.

Case No. 2—Gray gelding. History—The condition has been in evidence for about a year. Symptoms—Soft swelling the size of a man's fist over lower parotid region. No pain or pressure nor abnormal temperature. Diagnosis—Distention of guttural pounch. Operator—N. J. Miller. Exploratory operation through Viborg's triangle permitted the escape from the pouch of about one pint of semi-gelatinous nonpurulent fliud. Daily antiseptic irrigations resulted in complete recovery in thirty days.

Case No. 3—Bay gelding. History—Hit on the inside of the leg by a stone followed immediately by extreme supporting leg lameness. Clinician—R. N. McCarroll. Symptoms—Extensive edema of the leg above the hock joint with lacerated wound on inside of limb in the region of the lower third of the tibia. Manipulation revealed increased mobility with crepitation. Diagnosis—Compound fracture of tibia involving hock joint. Destruction was advised and carried out.

Case No. 4—Holstein cow, 5 years old. History—Been in constant estrum for six or eight months. Bred repeatedly and failed to conceive. Bel-

lows like a bull, and mounts other animals frequently. Examination revealed cysts in both ovaries, one of which was ruptured; the other ovary was crushed but no definite rupture of the cyst could be determined. Cow did not improve and was sold for beef three months later.

Case No. 5—Gray gelding. Poll-evil of several years standing. Several unsuccessful operations had been performed. Operator—A. G. Fisk. William's method of operation was followed in general. Necrotic tissues were removed and drainage established. After treatment, daily irrigations with Dakin's solution. Wound had closed at the end of five weeks.

Case No. 6—Two small pigs. History—A carload of simultaneously vaccinated pigs were shipped from Denver to Timnath, and placed with twenty-seven pigs that were unvaccinated. Twenty-one days later some of the pigs in both lots sickened and a few died. The day previously the twenty-seven had been vaccinated against cholera. The two pigs presented at the clinic were from the twenty-seven that had not been vaccinated until the day before the meeting. Drs. A. T. Kinsley, C. F. Harrington and J. D. Thrower were selected to examine the hogs, make post mortem examination and offer a diagnosis. The findings were approximately as follows:

Symptoms—Temperature 105, dullness, emaciation, rapid breathing. Lesions—A few bluish red spots on the ventral surface of the body. Necrotic sheath in one. Several of the lymph glands showed hemorrhages. Thoracic viscera normal, fundus of the stomach deeply reddened, intestines showed several necrotic ulcers, a few petechiae in the kidney. Majority opinion by Drs. Kinsley and Harrington—A few of the original carload broke and transmitted the disease to the twenty-seven, the disease being now complicated with necrobacillosis. Minority opinion of Dr. Thrower—Necrobacillosis is the primary disease and uncomplicated by cholera. All agreed that the sick pigs should be placed on copper sulphate which was done. About a dram was given for each hog, followed by the abatement of the disease with a total loss of about fifteen head, five of which were from the shipped in hogs and ten were of the twenty-seven.

Case No. 7—Two pigs presented with diarrhoea with a history of a considerable loss from this trouble covering a period of several months. A diagnosis of necrotic enteritis was made with the recommendation that the pigs be placed on copper sulphate. This recommendation was carried out with the result that one pig recovered and the other was slaughtered some time later because it showed no improvement.

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PROCEEDINGS FOR THE YEAR 1919

COLORADO VETERINARY MEDICAL ASSOCIATION

EDITED BY THE SECRETARY

SIXTEENTH ANNUAL MEETING
AT DENVER, TUESDAY, JANUARY 21

UNIVERSITY OF ILLINOIS
FEB 18 1921

Seventeenth Semi-Annual Meeting
At Fort Collins, Thursday and Friday, June 5 and 6

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A. N. CARROL, Pueblo .....First Vice President
J. F. MEINZER, La Jara.....Second Vice President
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Dickman, Andrew J., Salida.
DeLashmutt, Oren S., Steamboat Springs.
Fisk, A. G., Greeley.
Feldman, W. H., Fort Collins.
French, A. W., Cheyenne, Wyo.
Glover, G. H., Fort Collins.
Gilgen, Fred, Eaton.
Griffiths, A. H., Montrose.
Guyselman, P. C., Denver.
Grange, C. H., Longmont.
Hylton, F. D., Longmont.
Hermann, A. H., Denver.
Hover, Eugene, Holly.
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Jones, T. B., Las Animas.
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Kingman, H. E., Fort Collins.
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Lamb, Charles G., Denver.
Lamb, C. P., Brush.
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McCarroll, R. N., Fort Collins.
McCapes, A. B., Boulder.
McCullah, H. V., Ault.
McCrone, Edwin W., Kiowa.
McCandless, Leon C., Craig.
McGuire, Wm. B., Boulder.
McKim, Charles A., Windsor.
Meinzer, J. F., LaJara.
Miller, N. J., Eaton.
Morgan, O. B., Rocky Ford.
Newsom, I. E., Fort Collins.
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Phinney, Irving A., Loveland.
Patterson, Dewitt C., Sterling.
Perrin, Otis, Fort Lupton.
Rimmer, Thomas, Colorado Springs.
Schumacher, Wm., Durango.
Savage, A. J., Colorado Springs.
Swallow, Robert, Fort Morgan.
Stewart, C. C., Colorado Springs.
Sevey, A. M., Brighton.
Smith, Harvey E., North Platte, Neb.
Spratlin, Maceo E., Littleton.
Stout, Edgar N., Denver.
Scott, W. J., Fort Collins.
Traylor, T. E., Denver.
Tobin, E. E., Greeley.
Thrower, John D., Denver.
Wadleigh, A. G., Monte Vista.
Whitehouse, A. W., Fort Collins.
Woodliffe, M. J., Denver.
Watts. Ira, Timnath.
Waller, H. J., Center.
Warner, M. J., Windsor.
Welty, John W., Torrington, Wyo.
Yard, W. W., Denver.

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MINUTES OF THE SIXTEENTH ANNUAL MEETING OF THE COLORADO VETERINARY MEDICAL ASSOCIATION

BUSINESS MEETING

The meeting was called to order at 10 A. M., January 21, 1919, in the rooms of the Gentlemen's Riding and Driving Club, Denver, Colorado with President R. H. Bird in the chair. After the roll call and the reading of the minutes, the Secretary's report was read as follows:

SECRETARY-TREASURER'S REPORT

There are now sixty-eight members in this Association, fourteen of which are either now or have recently been in the service of the U. S. Army. During the past year, we have lost more members by death than during any previous year in the history of the Association. Four members, i. e., Drs. A. G. Brocker, T. N. Slayton, H. R. Millard and E. W. Alkire have passed into the great beyond since our last session. The first three died of pneumonia, following influenza, and the last one died from pulmonary abscess, after long months of suffering. Appropriate resolutions should be drafted by this association.

During the past month, your secretary was called upon to submit the names of the members of the Association with the school from which each graduated. From this list, I make the following summary:

Colorado Agricultural College	27
Kansas City Veterinary College	15
Chicago Veterinary College	9
Ontario Veterinary College	4
McKillip Veterinary College	3
Western Veterinary College	2
San Francisco Veterinary College	2
McGill Veterinary College	2
Detroit Veterinary College	1
Royal Veterinary College	1
Iowa Veterinary College	1
U. S. Veterinary College	1
American Veterinary College	1
Ohio	1
Cornell	1

Four of our members are graduates of two colleges, the combinations being as follows:

Kansas City and Detroit
Ontario and Colorado
Kansas City and San Francisco
Kansas City and McKillip

The financial report follows:

GENERAL FUND

RECEIPTS

Balance on hand June 26, 1918	$80.32
Collected dues and fees	61.00
Total	$141.32

EXPENDITURES

Lunch at Semi-Annual Meeting	$20.30
Printing and Stamps	9.60
Flowers	4.75
Relief Fund	3.00
Secretary's salary	$20.00
Total	$57.65
Balance on hand January 18, 1919	$83.67

RELIEF FUND

Collected from 47 members	$97.00
Transferred from General Fund	3.00
Total	$100.00
July 13, 1918 to Thomas E. Smith, Treasurer	$100.00

Respectfully submitted,

I. E. NEWSOM.

Dr. A. N. Carroll moved that a resolution committee on the death of our four members be appointed. This motion was seconded by Dr. Dickey and on vote passed. The committee consisted of Drs. I. E. Newsom, A. N. Carroll and A. B. McCapes.

In the absence of the chairman of the Examining Board, Dr. Newsom made the report. He explained that the names as recommended by the Association had been presented to the Governor and that Dr. R. H. Bird had received the appointment to fill the place of Dr. A. G. Brocker, deceased. A motion was made by Dr. Fisk and seconded by Dr. McCapes that a committee be appointed to see the Governor relative to the appointment of the second man who had been recommended by the Association. A committee was appointed consisting of Drs. Charles G. Lamb and G. W. Dickey.

The committee on legislation reported that five bills of interest to the Association had been introduced into the legislature. One provided for the appointment of county veterinarians to control disease among the live stock of the state. Another related to the licensing of firms selling hog cholera serum and virus, and provided that virus should be administered only by licensed veterinarians. Another proposed to amend the stallion law, increasing the number of diseases for which horses might be rejected and limiting the term grade to those animals who had one parent registered. The fourth was a bill providing for co-operation with the U. S. Department of Agriculture in the control of tuberculosis; supplying men to care for the routine and funds for the payment of indemnity. Another bill that had been introduced provided for collection of a tax on all cattle, horses and hogs within the state in order to create an emergency fund for use in case of an outbreak of disease. The Association endorsed the three bills providing for county veterinarians, the limitation of hog cholera virus and that having to do with tuberculosis control, and instructed the secretary to procure the numbers of these bills and notify each member so that they could be pushed, through our representatives in the legislature.

The committee on a uniform price for the administration of biological preparations reported. This brought forth considerable discussion, but inasmuch as there was no unanimity of opinion the committee was ordered continued.

The new officers were elected as follows:

President, H. E. Kingman.
First Vice President, A. N. Carroll.
Second Vice President, J. F. Meinzer.
Secretary-Treasurer, I. E. Newsom.
Executive Board—
A. B. McCapes, T. H. Brady and E. E. Tobin.

New members were elected as follows:

John W. Welty, Torrington, Wyo.
Eugene Hover, Lamar, Colo.
Wm. B. McGuire, Boulder, Colo.
L. S. McCandless, Craig, Colo.
Edwin W. McCrone of Littleton, Colo.
G. H. Carr of Brighton, Colo.
Edgar N. Stout of Monte Vista, Colo.
Gordon L. Cline of Haxtum, Colo.
M. E. Spratlin, Littleton, Colo.
O. S. DeLashmutt, Steamboat Springs, Colo.
T. E. Traylor, Denver, Colo.

PAPERS

The following program was carried out but only those papers read by Drs. Carroll, Kingman and Stiles were furnished for publication.

The Activities of the Denver Bacteriological Laboratory.....Geo. W. Stiles
The Future of Racing in Colorado and Its Influence on the Horse Industry .....M. J. Dunleavy
Hemorrhagic Septicemia .....A. N. Carroll
Report on the Use of Copper Sulphate in Necrotic Enteritis...H. E. Kingman
The Differential Diagnosis of Hog Cholera .....J. D. Thrower
Discussion—Opened by .....C. F. Harrington

HEMORRHAGIC SEPTICEMIA

By A. N. Carroll

Hemorrhagic Septicemia is an acute disease of animals and fowls caused by different varieties of the Pastuerella Group or the Bacillus Bipolaris Septicus.

The organism, in nature a saprophyte is very widespread, found in the soil, stagnant water, on various plants, as corn stalks, and dead organic material, occasionally in the digestive tract and air passages of the healthy individual. Under certain conditions probably the passage through the system of a susceptible or weakened animal, they become virulent and attack the tissues, causing the disease even in a healthy herd.

Their pathogenic action is favored, by all debilitating conditions as exposure, exertion, starvation, other diseases, and a weakened resistance due to vaccination.

According to Huytra and Marek, "A common characteristic of the bacteria belonging to this group is that they develop the highest virulence toward that species of animals for which they are naturally pathogenic, while toward other species their action shows a great variance. It is, however, possible to increase the virulence for other species through repeated reinoculations.

However, experimentally, Dr. Chas. Murray of the Iowa Experiment station has "never been able to transmit the disease from one species to another." In a number of instances cattle dead from Hemorrhagic Septicemia have been fed to hogs with no bad effects. It is my opinion that the organism is one and the same for all species and increasing the virulence toward one species, the bovis, for instance, does not increase it for the suis or avis. The germ remaining as a saprophyte in the hog and sheep until becoming pathogenic to them by passing through a susceptible animal of that species. Hemorrhagic Septicemia in cattle, caused by the Bacillus Bovisipticus, is very widespread, occuring either sporadically or enzootically, especially during the fall and winter months.

There are recognized five separate forms of the disease. They may occur singly or in combination in one herd or even in one animal.

The symptoms are many and varied depending on the forms of the disease present. There is usually some elevation of temperature, from 2 to 5 degrees Farenheit. Loss of appetite, rough coat, muscular tremblings and rapid loss of flesh. The pectoral form is very similar to pleuro-pneumonia with arched back, dry cough, nasal discharge and quickened difficult respirations. The intestinal form usually commences with colic, constipation followed by a bloody diarrhoea occasioning much straining.

Diarrhoea in calves with pneumonia as a complication, so often seen, is frequently caused by the Bipolaris Septicus.

Manifestations of the subcutaneous type are swellings under the skin of the throat, neck and shoulders. The enlargments are doughy and pit on pressure, discharging when opened a yellow inflammatory exudate. Eyes swollen, legs and joints may be enlarged and painful. Swelling of the tongue and paralysis of the throat. The meningeal type is characterized by brain disturbances, usually nervousness, viciousness or mania, possibly depression, occasionally symptoms of milk fever.

The Cutaneous form or Mad Itch, probably a combination of the subcutaneous and meningeal types is quite rare. The animals becoming crazy tearing the flesh by rubbing against posts, fences or other objects.

Lesions found on necropsy are not as varied as the symptoms, although in some typical outbreaks the diagnostic lesions are wanting. There is usually found petechial or ecchymotic hemorrhages in the serous and mucous membranes, particularly in the heart are the lesions constant, especially around the coronary band and in the endocardium where the tendinous cords attach to the muscular columns.

Hemorrhages may be found in widely distributed areas. Surface of the lungs, pleura, peritoneum bladded subcutis and intestines. The lungs when involved present a typical marbled appearance, with hyperemic areas red and gray hepatization and necrosis with edema or emphysema of the interstilial connective tissue.

The differential diagnosis of Hemorrhagic Septicemia and so called forage poisoning is probably the most difficult. Many of the symptoms and lesions are peculiar to both. Cerebral derangement, staggering paralysis of the throat and petechial hemorrhages in various parts of the body, finding the bipolar organism of course places the trouble. If there is a question it is better to change feed and vaccinate for Septicemia.

Aside from laboratory bacterial differences the following diseases may be differentiated.

Anthrax, antemortem by the lower temperature of Septicemia; after death by the normal appearance of the blood and spleen.

Blackleg by the absence of gas in the swellings, lighter color of the exudate and the swelling affecting the subcutis rather than the muscles.

Malignant edema by the absence of gas and odor of the exudate.

Pleuro-Pneumonia by the infectiveness of Hemorrhagic Septicemia.

Hog Cholera and swine plague are hard to differentiate as both are septicemias and frequently present in the same animal. The history of the herd and outbreak will have to be thoroughly reviewed. Cholera as a rule will affect more animals in the herd at one time, ranging from animals apparently normal tho showing a high temperature, to slightly indisposed, others seriously sick and a number dead. In Septicemia there is usually not so many sick and the apparently well ones having a normal temperature. Cholera tends more to repression and seclusion while with Swine Plague we frequently have nervousness or mania.

The lesions are usually quite similar tho the petechiae of cholera are more sharply outlined than the irregular blotches of septicemia.

Swine Plague affects the lungs more than in cholera but not so often the kidneys and bone marrow.

There is a divergence of opinion regarding Hemorrhagic Septicemia and Corn Stalk Disease with the bulk of the evidence pointing toward the Bovisepticus. In Colorado we have only small areas of corn fields but it is my opinion that there are certain poisons in the corn stalks, the amount depending on time of cutting and other conditions, which weaken the resistance of the animal opening the way for an attack of Hemorrhagic Septicemia. This poison, according to Mayo, potassium nitrate may be toxic enough to cause death, but I think it is usually Hemorrhagic Septicemia that gives the finishing touches.

Some investigators notably Lignieres and Babes consider the bacillus equisepticus as the true cause of influenza in horses. This theory to a certain extent has been substantiated at some of the recent Remount stations where in many cases the bacillus equisepticus was demonstrated in conjunction with the streptococcus pyogenus equi, especially in the pulmonary type. Bacterines either of the Equisepticus alone or in conjunction with the usual influenza bacterines proved very beneficial.

In some sections Hemorrhagic Septicemia of sheep is quite prevalent. Dr. E. T. Baker of Idaho vaccinates with marked success all outbreaks of sheep after excluding blackleg and plant poisoning.

In hogs during the last few years Swine Plague has become quite a menace. The predisposing cause usually being the simultaneous treatment against cholera. The bacillus Suisepticus in practically all cases is associated with a mixed infection of B Suipestifer, B Coli, Staphlo-Strepto and Pneumonococci causing lesions previously diagnosed as necrobacillosis. Swine affected respond very readily to a bacterin prepared from this multiple infection; it also has proven very efficient as a prophylactic if given at time of simultaneous vaccination.

The diagnosis of Hemorrhagic Septicemia is made by finding the symptoms and lesions enumerated above; also the exclusion of other causes and by bacterial examinations of the blood and diseased organs and animal inoculations.

The treatment of Hemorrhagic Septicemia with drugs has been very unsatisfactory. Some report favorable results from the use of Dickerhoff's solution of potassium sodide intratracheally 2 oz. twice a day; also from the use of Sodium Cacodylate 30 grs. every other day.

There are favorable reports from the use of a curative serum. Also the use as a prophylactic of an attenuated vaccine.

The most universally used at present is a bacterin prepared from the group in question particularly as a prophylactic although numerous instances are known where animals affected have recovered with a double dose of bacterines every 24 hours. In nearly every outbreak the disease is checked with one injection especially among cattle. Hogs usually require 2 or 3 injections 3 to 5 days apart.

Always change pastures if possible and feed, if the feed in question is corn stalks.

There remains at the present time a whole lot we do not know about Hemorrhagic Septicemia in all of its complications and manifestations.

THE USE OF COPPER SULPHATE IN THE TREATMENT OF NECROTIC ENTERITIS.

By H. E. Kingman

This is not a paper upon necrotic enteritis but rather a case report upon the above mentioned subject. Further the situation is almost embarrasing since there is no certainty in regard to the actual etiology. However, we are all familiar with a disease in pigs, cracacterized by the formation of mealy ulcers on the mucous membrane. Sections of intestine two to twelve inches in length become thickened and firm to the touch, the mucous surface is covered by an exudate apparently organized in limited areas and can not be removed surgically without destroying the mucous membrane. This area shows many phases of inflammation, varying from an intense redness to actual necrosis. The serous coat may be covered with a thin fluid or even a yellow gelatinous exudate. The animal becomes emaciated, the back is arched and the hair rough, in the beginning there is a slate covered diarrhea. In very young pigs this may be practically the only pronounced symptoms. Small pigs show very slight resistance to the infection and succumb quickly. Of course here the point of differential diagnosis arises and has led many observers to evade the question by terming the condition a mixed infection which, after all is not a bad idea.

Our first experience in the use of copper sulphate was rather disastrous. We were instructed to give 2 drams at one dose, this seemed rather large, especially for pigs, so it was cut down to ten grains. This completely wiped out one litter. Again the dose was reduced to one grain with better results, but for pigs one to two weeks old it was found that one-fourth to one-half grains a day was sufficient.

In shoats weighing fifty to one hundred pounds we usually try to make them take one-half dram a day in the drinking water. I think tho that when the water is prepared in this dosage it usually takes two days and perhaps more before a great deal of it disappears and then part of it is always dumped out and replaced with fresh solution, so often the dose per day dwindles down to much less than half a dram per hog.

In regard to results irrespective of the cause and accurate diagnosis, one herd of 75 hogs continued to die following immunization. Autopsy revealed necrotic enteritis, necrotic stomatitis and ulcers of the prepuce. The hogs were confined in a pen without access to water except from the troughs which were filled with water containing a solution of copper sulphate estimated to be about a dram a day of the crystals per hog. In the next few days there were four or five deaths, but after this loss the rest showed constant improvement.

Another herd was immunized by simultaneous method against cholera. This was a non-infected herd. In a few some of the smaller hogs dropped off. The owner supposed that the serum was to blame and said nothing. After losing about twenty head several were autopsied and intestinal ulcers, reddened areas, necrotic prepuces, and sore mouths were found. Copper sulphate was given to the remainder and no further losses occurred.

One herd with a history of a mild infection, lost one or two cases a month perhaps, however an effort was made to arrest the disease in these few cases. The pigs were isolated and given ten grains of copper sulphate in solution, once a day. Recoveries were phenomenal, shoats in an emaciated condition recovered in a few days.

An interesting result of the treatment is the passing of intestinal casts two to twelve inches in length. These tubes are of a well organized consistency and resemble mucous membrane. Our pathologist informs us, however, that it would be impossible for the mucous coat to slough

and be replaced. Since the hogs do remarkably well after the passage of the cast it is presumed that the surface is only freed from the tenaciously organized exudate.

ACTIVITIES OF THE DENVER BACTERIOLOGICAL LABORATORY

By Gorge W. Stiles, Jr.*

A branch laboratory of the Pathological Division was established in Denver, February 6, 1918, largely for the purpose of making bacteriological investigations in connection with the infectious diseases prevailing among the domestic animals of this section of the country.

The eqnipment of a laboratory of this character in the Rocky Mountain region brings the investigator into close and direct relationship with a large percentage of live stock grown in this locality, and greatly facilitates the handling of specimens for examination.

It is generally known that heavy losses from disease have occurred in the live stock industry during previous years, and had a correct diagnosis been made of the cause of death among these animals, such losses could probably have been materially reduced by appropriate treatment and preventive measures.

The value of the live stock industry in this part of the United States is shown in the following table, prepared from the 1918 Year Book of the U. S. Dept. of Agriculture. The figures given are the estimates of January 1, 1919, and the average price per head is based on the total production of the country.

NUMBER AND VALUE OF CATTLE AND SHEEP IN EIGHT STATES OF THE ROCKY MOUNTAIN DISTRICT.

	No. cattle	Value	No. sheep	Value
Montana	1,217,000	$77,217,000	2,984,000	$35,211,000
Wyoming	1,072,000	68,640,000	4,018,000	49,421,000
Colorado	1,625,000	97,270,000	2,303,000	25,103,000
New Mexico	1,409,000	69,142,000	3,135,000	26,648,000
Arizona	1,172,000	54,220,000	1,400,000	14,000,000
Utah	581,000	31,370,000	2,410,000	26,510,000
Nevada	562,000	27,777,000	1,520,000	17,936,000
Idaho	676,000	37,657,000	3,234,000	39,455,000
Total	8,314,000	$463,293,000	21,004,000	$234,284,000

The total number of cattle estimated in the United States on January 1, 1919 was 67,866,000, valued at $3,796,725,000. According to these estimates the above eight states produced approximately 12% of the total number and value of cattle produced in this country.

Estimates of the number of sheep show there were 49,863,000 head January 1, 1919, valued at $597,516,000.

By comparison is is shown that about 40 per cent of all the sheep in the United States are grown in the above Rocky Mountain states.

During recent years the value of the individual animal has materially increased. On January 1, 1917, the average milch cow was worth $59.63, where two years later she was valued at $78.24 per head. Other cattle increased from $35.88 each to $44.16 during the same period.

In 1895 the average estimated value of a sheep was $1.58 per head, and on January 1, 1917, they had increased to $7.13 and two years later to $11.75 each.

During the period since the laboratory was established many avenues of activity have developed. Particular attention is being devoted to the study of hemorrhagic septicemia, anthrax, blackleg, ictero-hematuria and other infectious diseases.

Hemorrhagic septicemia has been encountered in this section of the

country. As some of the symptoms of this disease resemble those seen in plant poisonings, it is probable that death has been erroneously ascribed to this cause in some instances. The annual loss among sheep is very heavy and there is a possibility that hemorrhagic septicemia may be an important factor in their mortality. Vaccination against this disease appears to be an effective agent in the prevention and further spread of this malady. Other causes of death in sheep have been ascribed to alkali poisoning, improper feeding, tape-worms, gid infection and starvation, although the post-mortem findings and laboratory investigations have resulted in a diagnosis of hemorrhagic septicemia.

Suspected cases of anthrax are diagnosed positively only after the demonstration of the causal organism in pure culture from the specimens by direct staining, cultural examination; their injection into guinea pigs, and the recovery of the organism from the dead experimental animals. A number of suspected cases of anthrax have been examined, which upon microscopic examination, showed the presence of rod-like organisms in stained smears; but cultures and animal inoculations failed to substantiate the preliminary findings of anthrax, the organism in question belonging to the B. subtilis group.

Cases of blackleg are occasionally confused with anthrax or hemorrhagic septicemia, more particularly when the disease appears in older cattle which have not been protected by vaccination against blackleg.

A number of cases showing symptoms and lesions similar to icterohematuria in sheep have been under observation. The chief symptoms observed in the living animals are intense jaundice of the mucous membranes, passage of bloody urine, and death within a short time afterward. Post-mortem examinations show the jaundice to be general throughout the body, bile stained and degenerated livers, kidneys black in color with the capsule easily removed. It is believed that motile parasites have been observed within the red blood corpuscle of fresh, unstained, blood preparations. Further study of this interesting disease is contemplated when an endeavor will be made to study the life cycle of the supposed organism. Prevention and treatment of the disease will also be studied.

METHOD OF SENDING SPECIMENS.

Tissues for bacterial examination should be collected as quickly after death of the animal as possible. Portions of blood, lung, liver, spleen, kidney and other tissues showing abnormal conditions should be submitted. Blood should be collected in small sterile vials, or the unopened heart submitted; other specimens may be packed in a generous quantity of dry borax and shipped in water-tight containers. Fruit jars answer this purpose nicely. The quantity of the specimen necessary will depend on the size of the animal. Portions half the size of a man's hand are desired when practical. In the case of suspected anthrax, the ear only of the dead animal is often most convenient. Special care of such specimens should be exercised to prevent infection by sending through the mails. They should be placed in unbreakable containers, well packed, and sent by express to the laboratory. Specimens intended for examination should be addressed to Dr. W. E. Howe, inspector in charge, 444 Postoffice Building, Denver, Colorado, and accompanied by a letter of explanation giving a brief description of the symptoms, post-mortem findings and any other information of value pertaining to the case.

It is believed that the work of the Denver Bacteriological Laboratory will result in reducing the heavy losses now experienced in the livestock industry, and thereby contribute to the conservation of meat products, wool, leather and other products so necessary in times of peace, and doubly so under present war conditions.

*Bacteriologist of the Bureau of Animal Industry, U. S. Dept. of Agriculture, 444 Postoffice Bldg., Denver, Colo.

THE SEVENTEENTH SEMI-ANNUAL MEETING OF THE COLORADO VETERINARY MEDICAL ASSOCIATION HELD AT FORT COLLINS JUNE 5 AND 6

BUSINESS MEETING:

The meeting was called to order by President H. E. Kingman in the Civil & Irrigation Engineering Building at the Colorado Agricultural College at 11 o'clock A. M.

Dr. E. E. Tobin reported that he had no definite recommendations to make for the committee on biologic preparations. The committee was continued until the winter meeting.

Dr. Charles G. Lamb reported that agreeable to a recommendation by the association Drs. R. H. Bird and A. N. Carroll had been appointed to the State Examining Board.

Dr. Lamb reporting for the committee on legislation stated that the bills in which the veterinarians were particularly interested failed of passage in the last legislature. He said that the county veterinary bill was passed in the Senate and passed two readings in the House, but was killed on the third. He explained the amendments which were made to the stallion bill, stating that all fees hereafter would be $5.00, whether original or for renewal and that all licenses would expire on December 31st.

Dr. Dickey moved that the report of the legislative committee be accepted and the committee continued. This motion prevailed.

The names of Drs. W. H. Feldman, C. A. McKim and John A. Bestall were added to the roll and these men were elected to membership.

PRESIDENT'S ADDRESS

H. E. Kingman

It is the purpose of this paper to call the attention of the members of the association to some of the functions, duties, privileges and powers of the organization.

I believe there are many things which we should be doing which we are not. At least a greater effort must be made to make use of some of our latent powers. We have exercised some of them, but the effort must not cease. Advancement requires constant work. I have in mind the following subjects: Ethics, veterinary fees, self improvement and legislation. It is frequently admitted that a talk of this kind may be likened to a drug, which when given in the right sized dose is a stimulant, and if repeated at proper intervals becomes a tonic, but when too large quantities are forced upon the patient at one time, its effects are toxic. It is hoped that members present will not only be patients but patient; that the dose will be mild and that none will show symptoms of anaphylaxis. All of us are conscientiously endeavoring to do our bit to further the advancement of the profession. By this, I mean the rendering of an increasingly greater service.

It is well to frequently call attention to the fact that we are the guardians of the health of the live stock of the country; not only the lives of dumb animals coming under our protection, but the prevention of spread of disease to the human family constitutes no small part of our duties. It is plain that our interests are in common, that we are all striving to accomplish the same end. Is it not logical and necessary that we unite and help one another? This is the principle of ethics and constitutes one of the great functions of our association. More and more, we

are going to realize that personal achievement is one of importance only when the results of it are made the common property of the profession. Our present state of advancement is dependent upon this fact and we should be thankful that the pioneers of medicine were broad minded men, foreseeing the value of co-operation and placing the stamp of disapproval upon secrecy and charlatanism. Associations of this kind have done wonders in promoting the sentiment of co-operation and in discouraging petty efforts to work independently and perhaps antagonistically to other members of the profession. As soon as a man realizes that he needs the good will, help and support of his fellow workers, right then he begins to advance in knowledge himself. This is not a sentimental theory, but a practical fact well founded, tried and proved. It is not necessary to lay down a specific code of ethics. We know what it comprises. It is only essential to remember that members of our profession are our colleagues, not our competitors; that it is everyone's duty to support and assist a colleague. I say duty because his interests are in common with yours. Co-operation is the greatest factor in advancement. If there is one thing more than another that forms a barrier between practicing veterinarians, it is the matter of fees. We have made some effort to adjust this matter and considerable information has been compiled. I have letters from Iowa, Kansas, Nebraska, Utah, Idaho and California. All of these states are working on the problem. Nebraska feels that there is no hope of ever accomplishing very much. The letter from California states that it is very necessary that some agreement be reached. As a whole the outlook might seem discouraging, but on the other hand, the field is large and there is the need of effort. At least, we are not going to give it up without a trial.

Here are some fundamental principles upon which we are working. Every veterinarian asks a fee from his clients. The amount is fixed first by custom, distance traveled to see patient, time spent, value of the animal, financial standing of the owner, etc. The point is, the veterinarian must state his price no matter now what sort of reasoning he uses. This being the case, is there any reason for keeping the matter of the size of the price from the profession. It can not be kept from the neighbors of the client. Why then from his colleagues? On the other hand is there any real reason for telling the profession what we are charging, or to put it a little stronger, has the association any right to know what the individual charges? It certainly has. Why? Because the interests of the profession are at stake and the actions of a single member of the profession may result not only in bringing the profession as a whole into disrepute, but may end in the changing of laws affecting the profession as a whole. If, however, the association has indicated what it considers a fair fee, then flagrant digressions will not receive the support of the association. Knowing this, the members will be more careful labout their charges. It is safe to say that 90 per cent of veterinary fees are too low. On the other hand, there has been a tendency to charge exorbitant fees for a class of work that does not require a great deal of skill or basic training. A man who charges an exorbitant price should be admonished by this association because of the reaction that is bound to take place as a result of it.

We have as a precedent the state of affairs in a number of our sister states where relations between stock raisers and veterinarians are strained. The veterinarian is indebted to the stock man for his existence: from him we who are in practice derive our sustenance. Is there any doubt in the minds of the members of this association whether or not we owe the stock man fair treatment? If we do not treat him fairly, the profession as a whole will suffer. Then, does it not become a matter for this association

to consider? The impression is not conveyed that members of this association are guilty, but it is very apparent that practically no two members are charging alike and here is where the danger lies. There is need of uniformity. It is of interest to both the stock man and the veterinarian that a uniform fee be charged for a certain kind of work. If this association, as a whole, after due investigation and consideration of the interests of both parties, could agree upon a scale of fees, great good could come from it. Let it not be understood that we would expect every one to adhere absolutely to such a scale, but it would form a basis of reasoning, and fees could be charged according to conditions using the scale only as a sort of governor. Young men starting out in practice have little idea in regard to fees. It should be possible for an institution of this kind to instruct its graduating class regarding prices to be charged, especially in the administration of biologics where the service is practically the same in every instnace and the value of the animals is quite uniform. I believe we look to the young graduates as our greatest hope for the final establishment of some uniformity. It is hardly to be expected that a man firmly established can make very radical or sudden changes in the fees his clients are accustomed to paying. In the case of the man that is just beginning, a scale of fees would be of great assistance. Of course he has his colleague to take into consideration and the fees that he charges should agree so nearly with those customary to the locality.

Within the next six months, the members of this association will again be called upon to assist the committee that was appointed a year ago to work upon the matter of fees. It is hoped that time has added something and that the members will not hesitate to part with any information that will aid this committee. In fact, it seems to me that a refusal to give this matter honest consideration and openly assist the committee would be decidedly a breech of ethics.

SUMMER SCHOOL

Frequently the members of this association have expressed a desire to have inaugurated some plan by which they might receive instruction from the veterinary department. Many of us have been away from school for a number of years, and even those who have recently graduated, realize the advantage to be gained from a course in some subjects that have made rapid advancement. Such a movement must necessarily come from the veterinarians and it must be supported by a sufficient number to assure the success of the course. In addition to the teaching force now on the campus, it would be possible to obtain the services of men from outside of the State who are making special studies of specific diseases. Let us think this matter over.

LABORATORY DIAGNOSIS

Another matter that deserves special consideration is the enlargement of our department of laboratory diagnosis. All of us have need of work of this kind, as is evidenced by the amount of material that is received by the men already at work along this line. The present staff and equipment has been able to give proper attention to only a small portion of the material received. I believe that a resolution is in order, that the association ask the State Board of Agricultlure to provide greater facilities for the handling of pathological material sent to this institution for diagnosis. This matter again is of common interest to the veterinarian and the stock man; the stock man primarily, the veterinarian doing his best to serve the stock man and his interests.

LEGISLATION

The subject of legislation will be discussed by our committee. Special attention is called to the fact that we are confronted with a serious situation and the committee will undoubtedly lay before us its plans for the

next campaign. It is to be regretted that we were unable to accomplish as much as we had expected at the last meeting of the legislature. However, we know now where and who the opposing factors are and have already laid some plans to meet the arguments of the other side. Perhaps now that we realize more fully what the objections are, it will be possible to derive a greater effort from the members of the association and others in our behalf.

CLINIC

We should not be neglegent in expressing our appreciation to those members who have made a special effort to obtain clinical material for this meeting. We are especially indebted to Drs. Fisk, Blake, McCarroll, McKim, Tobin and Grange.

CAESAREAN SECTION IN SOWS

N. J. Miller

Caesarean section in sows is an operation that is being performed more and more as the high price of pigs makes the brood sow more valuable and consequently the veterinarian more in attendance at such times.

Indications—Caesarean section is indicated in those cases where forcep delivery is impossible and where the physical condition of the sow is still good. The success of the operation depends largely on the condition of the sow and this point should not be overlooked. In long standing cases where there is much bloating and great depression and in cases where there are extensive vaginal lacerations the operation is contra-indicated and the percent of recoveries is small.

RESTRAINT AND PREPARATION

The operation is performed in the lateral recumbent position, preferably on the right side. The legs are extended and held securely to posts or stakes by means of sash cord or preferably loose twist hemp rope. An assistant to hold the head down and restrain the movements of the animal while the incision is being made is a great help.

Only local anaesthesia is used but this should be extended deep into the muscular tissue. Sows will not stand general anaesthesia but if the operator insists on the use of a general anaesthetic ether should be used.

A large area around the site of the incision should be clipped and the side brushed thoroughly with a stiff brush to remove the clipped hair as this is a constant annoyance during the operation if it is not removed. The side is then thoroughly washed with an antiseptic and the field painted with iodine.

EQUIPMENT

The following instruments are needed: Scalpels, artery forceps, big forceps, needle holders, round needles, cat gut and braided silk or linen.

TECHNIQUE

The incision about six inches in length is made through the skin and subcutaneous tissues down to the external oblique muscle The fibers of this muscle may be cut through or the fibers divided and pushed aside as the operator wishes. However, the fibers of the internal oblique should be divided and pushed aside and an incision made through the peritoneum.

Following this incision usually a large quanity of clear or amber colored fluid will escape through the wound. The hand is then inserted through the incision and a search made for the uterus. One horn of this organ is brought up through the incision and a longitudinal incision made through its wall at a point as near the bifurcation as possible. This is to enable the operator to remove pigs from either horn through the one incision. However, if this is not possible other incisions are made through

the uterus at points which enable the operator to remove the pigs.

In long standing cases the normal fluid surrounding the pigs will be absorbed and the pigs surrounded and destended with gas and their removal from the uterus will be difficult.

When all the pigs have been removed the incision in the uterus is closed with a round needle and heavy cat gut, using the Czerney-Lambert suture. It is well to continue the Lambert sutures well past the ends of the incision.

As to the removal of the placenta before closing the wound, if they can be removed by moderate traction, alright; if not, they should be left in the uterus.

The peritoneum is closed with cat gut and the muscles and skin with interrupted sutures of braided silk or heavy linen and the wound covered with collodion.

After care—The patient is kept in a quiet place with plenty of clean bedding and nothing but sloppy food for four or five days. The stitches may be removed at the end of a week or ten days.

SHEEP DISEASES IN WESTERN STATES

A. W. French

When I accepted the invitation of Dr. Newsom to deliver a paper at this meeting on Sheep diseases, and give some of my experience in handling the same in my practice in Wyoming, I accepted, knowing that I was up against a pretty difficult proposition, owing to the fact that up to a few years ago, sheep were not valuable enough to pay to call a veterinarian, unless some infections or contagious disease broke out, causing danger to the entire flock.

Up until I went to Laramie in the year 1909, out in that country, they called a sick sheep a dead sheep and let it go at that. The F. S. King Sheep Company located at Laramie, now have one of the finest flocks of Rambouillet sheep in the United States, also Corredales at this time. Only recently, they sold a buck for $1350.00, and their price on young bucks at weaning time ranges around $100.00, so that sheep disease in Wyoming is beginning to come into its own.

We have had a disease in the west, for the past ten or twelve years, that is practically unknown in the east, namely,—lip and leg ulceration, or necrobacillosis. This disease assumes several different forms, under similar environments and in certain cases, it becomes virulently infective, while in others, under practically the same conditions, it shows a tendency towards spontaneous recovery. The lip and leg form attacks the lips and legs, one or both. I have seen it in some bands where the lesions were almost entirely on the lip and nose, while in other bands it seemed to be mostly on the legs. The seat of the lesions may be varied, by the difference in the condition of the feed and the grounds upon which the sheep run.

In the active stage of the disease, the lesions manifest themselves by inflammation, ulceration and necrosis, with more or less destruction of the tissue, causing in some instances, a sloughing of the end of the nose. The erosions on the lips are largest at the corner of the mouth and become smaller toward the center of the lips. These form in rather round dry, hard scabs and when rubbed off, usually show a deep seated ulcer, with green pus at the bottom of the sore. In some instances, I have seen it in the bucks of the herd, their sheath becoming affected with ulcers on the penis. If this happens at breeding time, the ewes become afflicted and in a great many cases, they abort. Often if they carry their lamb full time, it in a great many cases becomes affected at the time of birth.

Treatment.—1st: Separation of sick sheep from healthy animals.

2nd: Keeping close watch for infection in a clean herd.

3rd: Complete disinfection of all pens, corrals and sheds, where sheep have run.

Treatment for those affected is the same as for any lesion caused by the necro bacillus, i. e., remove the necrosed tissue and apply local antiseptic.

We occasionally have foot rot in sheep caused by the same bacillus, but in a somewhat different form. In the milder forms of foot rot, treatment consists of building a trough some twelve inches wide and of a length depending on the number to be treated, the depth being about ten inches. This trough should form the bottom of a run-way, so that all sheep will be compelled to pass through it, and can be held by suitable gates to hold the sheep long enough to soak the solution into the lesions. Should the case be advanced, some of the sole of the foot may have to be pared away, before treatment can be properly applied.

I have always found, both in foot rot and lip and leg ulceration, that we don't want to use our antiseptics too strong. The first application I want good and strong; then use it just strong enough to induce granulation.

Sheep scab is the cause of considerable trouble, in some of our western and southwestern states. There is quite an economic loss in wool, as well as flesh in a band of sheep affected with mange.

The cause of scabies in sheep is the parasite belonging to the family Sarcoptidae. The species psoroptes communis ovis, being the mite producing the disease in question. It spreads rather slowly, but if left to run its course, it will spread over the body and cause intense irritation which causes the sheep to bite and rub, in time causing a loss of most of the fleece.

This parasite, under microscopic examination, resembles the psoroptes communis bovis very much. It is a little smaller and will not affect horses or cattle.

Treatment consists of dipping, of which there are several recommended. In our state, we use the Blackleaf 40 and sulphur. Blackleaf 40 at .05 of one per cent. and flowers of surphur at 2 per cent. Second dipping in from ten to fourteen days following the first. This will clean up scabies, if sheep are held in vat a sufficient length of time to become thoroly wet with the dip.

Pneumonia in sheep at shearing time, causes serious losses some years in the west, where we have sudden changes in the climate at certain seasons of the year. I have seen snow blizzards come in April and May, when shearing season was on and freshly shorn sheep that were out and not protected from the weather were almost certain to contract pneumonia and pleurisy, sometimes causing enormous loss.

The symptoms do not differ materially from that of horses or cattle. It is usually an acute type of pneumonia and terminates fatally before hepatization has been established. Post mortem appearances are those of congestion and sanguinous engorgement of the lungs, rather than hepatization. If recovery takes place, it is by resolution or dispersion of the exuded material. It is announced by a quick decline of temperature, respiration more normal and easier breathing. Treatment consists of plenty of pure air. House them warmly; give sodium hyposulphite and potassium nitrate in drinking water. Acetanilide, about 20 gr. dissolved in a little whiskey and mixed with an equal amount of water and given three times daily is good in reducing high temperatures. Feed easily digested food at first, and later on more concentrated feed is indicated.

Perhaps our greatest loss in the western states among sheep is from poisonous plants, a couple of which I will mention.

First, Death camas, which grows abundantly in some of the western states. It is a flowering plant which resembles the wild onion. It makes its appearance along about the time the first green grass appears in the

spring and flowers about the middle of June. As a rule, the plants stand out, one in a place and not in patches, as some of our poisonous plants do.

Symptoms. The symptoms are quite characteristic and are easily recognized. The animals are at first uneasy; loss of control of some of the muscles; finally all loss of muscular control, difficult rapid breathing; frequent, weak pulse, complete muscular paralysis, without loss of consciousness.

I never have had very much success in treating these cases. Potascium permanganate and aluminum sulphate in equal amounts, about three to six grains, is recommended as the best antidote. This must be administered early to be of much avail.

Second, Woody aster, another poisonous plant of equal, if not greater importance in Wyoming.

During the past several years, thousands of sheep have died in Wyoming through eating the woody aster. It is probably the cause of greater loss than any other single poisonous agency.

This plant has a strong woody root, more or less branched just at the surface of the ground. From these woody crowns, tufts of short branches spring. These bear green narrow leaves, about two inches long, the whole tuft becoming at length, several inches high, and producing in June a considerable number of white daisy like flowers, with a yellow center. The leaves if examined are usually found to bear a considerable number of brownish yellow spots, which is caused by a fungus. The poisonous period is from the time it first appears until the blossoming period has passed.

Symptoms.—Weakness of muscles of legs. Animal lies or falls down. Later muscles of neck become weakened. Rise in temperature pulse rapid and weak. Breathing labored, with rattling in throat. Bloat is generally pronounced. Increased secretions of urine. Froth, often bloody, comes from the throat and nose. Mucous membranes vary from white to bluish. Pupils dilated. Cerebral symptoms are present in most cases. Before death, there is complete prostration and apparent unconsciousness. Death ensues in from a few hours to three or four days, depending on amount of poison.

As for treatment, I will say that there is at present, no known remedy. About the best and only thing to do is to avoid the aster patches.

Bloat in sheep is common, especially if they have access to alfalfa in the spring. A sheep can eat faster than most any other animal and if a band of sheep are turned in on alfalfa, especially following a shower, quite a number are likely to bloat, with a probability of some loss in a few minutes.

Symptoms. The first symptoms are one or more animals standing with a look of helpless pain, respiration labored and abdomen distended. Soon the animal staggers, tries to stand up but fails and drops to the ground, dying in convulsions, the immediate cause of death being suffocation. Such remedies as oil of eucalyptus, aromatic spirits or ammonia, turpentine and linseed oil are used, but the time is usually short and many sheep are lost before medicinal aid can be rendered.

Dystocia at lambing time on the grounds is a very common thing, and is usually looked after by the herder, who probably saves some lambs, but in a great many cases infection of the ewes, by his dirty methods. There is a good field for the veterinarian, now that sheep are of such value on the ranch, teaching the cleaner methods of handling such cases. We need not expect to take this particular job away from the common laborer on the ranch, but by teaching him how to be more successful with his work, there will be a larger field for our services in doctoring the mature sheep.

Mammitis. This is a very common occurrence among sheep and is really serious. I remember, one of my first cases at King Brothers at

Laramie, Wyoming. I was called to see a $300.00 ewe that had pneumonia and mammitis. This ewe was lying in the shed, prone upon its side, sniffing the dust at every breath and it looked like a helpless case, and knowing that they always considered a sick sheep a dead one. I concluded that I had struck a bad case as a starter, for this firm. I told them the chances were very much against us, but we would try. I followed the usual routine of doctoring pneumonia and for the mammitis, I mixed up a solution of Epsom salts and fluid extract of phytolacca to bathe the udder with and gave instructions to let the lamb nurse. I saw the foreman in a few days and to my surprise, he told me that the sheep was doing fine. It made a good recovery, which meant a good many dollars to me afterwards. I was paid $64.00 on another occasion for doctoring their prize ram "Wyoming." They were very much pleased and used this ram for three seasons, after I doctored him and told me they figured they got $50,000 worth of breeding in those three years from him.

In the west, the large sheep breeders are changing very rapidly from the notions they had a few years ago. A great many sheep men, now have substantial herds of cattle, and a call for the veterinarian now, may mean a call to doctor either a sheep or a cow or both.

If we can demonstrate to the satisfaction of the sheep breeder that we can handle sheep diseases successfully, it will not be long until our practice is more lucrative and under present war conditions, we can count ourselves as helping to conserve the food supply and thus help to feed the millions.

DISCUSSION.—Dr. Kingman.—I should like to ask Dr. French if he has found any trouble with prolapse of the uterus in ewes. I had one bunch last spring in which there was considerable loss from this trouble. On the first one, I tried caesarian section but lost both the mother and the lamb. In one case, I found that the mouth of the uterus might be dilated and by doing this was able to save both.

I should like also to ask if Dr. French has had any experience with hemorrhagic septicemia.

Dr. French.—I have not seen the prolapse of the uterus described by Dr. Kingman. We did have one serious outbreak of hemorrhagic septicemia in which 106 animals died out of five carloads of Idaho sheep.

Br. Bird.—Many years ago we found large numbers of tapeworms in the lambs which we posted and it was the general belief at that time that the tapeworms were causing the trouble. I should like to know what the present attitude is on this problem.

Dr. Newsom.—Tapeworms are very common in western lambs and are to be found about as frequently in fat lambs on the killing floor as in any class of animals. From this fact, we judge that they are not responsible for much loss.

SOME IMPORTANT DISEASES OF FOWLS AND THEIR CONTROL

C. E. Salsberry

Diseases of fowls have been an altogether too uncommon a topic for discussion at association meetings, simply because these animals were not considered an asset in a class with horses, cattle, hogs and sheep. Often the veterinarian was called when the watch dog broke a leg and the same day two or three chickens probably could have been found dead somewhere about the premises. It is only quite recently that these animals have been receiving the attention they deserve and the thing that brought it about was "the dollar." Chickens at $1.00, eggs at 50c on the farm caused an awakening.

In our association with veterinarians we are in touch with the pulse of demands for information concerning diseases of livestock and speci-

mens from fowls are becoming as common as any others, and inquiries about this condition or that treatment are received constantly. It is unfortunate that this phase of Veterinary Medicine did not receive its share of attention when we were in college. Today we wish we knew more about it, and veterinary schools should not waste more time on dogs and cats while fowls go abegging.

Time does not permit the discussion of all the common conditions but we shall consider three very important ones, viz., Hemorrhagic Septicemia, White Diarrhoea and Tuberculosis.

Hemorrhagic septicemia, commonly known as "Fowl Cholera," is an acute contagious disease of fowls, invariably fatal, and often without much clinical manifestation. It is caused by the bacillus avisepticus, a bacterium belonging to the group of hemorrhagic septicemia organisms. Natural infection usually results from the ingestion of droppings of affected fowls, contaminated feed, carcasses or parts of carcasses left undestroyed upon the premises. The infection may be transmitted from one farm or neighborhood to another by birds or the introduction of fowls from an infested flock. The organisms have also been demonstrated in mites and these may also carry the infection from one fowl to another.

Pure bred fowls are much more susceptible to the infection than the common breeds, in fact, some of the common breeds show quite a resistance to natural infection. Occasionally there are cases in which the animal withstands the first infection by ingestion but on second exposure, appears to be much more susceptible.

The period of incubation in cases of natural infection is probably quite variable. Some investigators have found that it is as long as 20 days, but the average period is quite likely not greater than from 4 to 8 days.

In our definition of hemorrhagic septicemia, we describe it as an acute disease but this should be modified to some extent because occasionally there are cases that may be classed as chronic. The acute form is very rapid, birds being found dead without having exhibited any clinical evidence of being ill. Fowls may be running across the lot and fall dead, they very frequently fall from the roosts or are found to have died on the nest, without the slightest evidence of a struggle. These, we may say, are exceptional cases. Perhaps in the majority of cases symptoms develop which are quite characteristic. Birds become suddenly depressed and assume, what is commonly called a ball-shaped position, there is a tendency to seclusion and frequently they are found sitting and trembling, the feathers are ruffled, there is no attempt to support the wings, the appetite is imparied from the first, while the desire for water is greatly increased. There is a characteristic discharge from the nasal and oral openings, the combs and wattles show a bluish-red discoloration, sometimes there is swelling about the head and neck and occasionally vomiting. As the disease reaches its climax, a profuse diarrhoea develops, in which the droppings are at first yellowish-gray, semi-solid, later becoming fluid mixed with blood and flakes of coagulated albuminous material, having a very repulsive odor.

Respiration is difficult and becomes more pronounced as the disease progresses, even to a point where the fowls apparently gasp. At this stage, great weakness is evident and they become comatose and lie with the eyes closed until the end. If they attempt to rise, they usually fall and the struggle brings on convulsions, after which the animal usually succumbs very quickly.

In the chronic form, a progressive anemia develops soon after the disappearance of the acute symptoms, occasionally from the onset of the disease. Emaciation is one of the characteristics of this form due to the loss of appetite and the exhausting effect of the persistent diarrhoea. Occasionally the joints are swollen, sometime sthe swelling bursts, dis-

charging a caseous, purulent mass, teeming with organisms, which, by the way, is one manner in which the infection is spread to other fowls.

The chronic nature of hemorrhagic septicemia in fowls is not nearly so prolonged as the cronic condition of many other diseases, in that it lasts for a week or two and very exceptionally may last much longer. It is in these cases that the disease is less active from the first and the animals finally succumb as a result of the great wasting and exhaustion which accompanies it.

The principal lesions are very similar to those found in hemorrhagic septicemia of other animals. There is acute hemorrhagic inflammation of the intestines and lungs with small hemorrhages on the serous membranes, fibrinous exudates may be found upon the peritoneum or pleura, the intestinal mucous membrane is congested, frequently in spots only. Occasionally these hemorrhagic areas may be in the form of streaks, particularly in the duodenum. The contents of the pericardial sac may contain small fibrinous flakes, -while the pericardium itself is liberally sprinkled with small hemorrhages and may be covered with a fine, fibrinous membrane. The lungs are congested and the surface is frequently covered with a fibrinous exudate, which is often associated with fibrinous pleuritis.

In the chronic cases the lesions are somewhat different in that yellowish-gray, dry, caseous foci are found in the lungs, liver and intestinal mucous membrane and sometimes are very extensive. The fibrinous pleuritis and pericarditis is much more pronounced in the chronic than in the acute form.

The prognosis is always unfavorable, frequently an entire flock will succumb to the infection before relief can be had.

No satisfactory medicinal treatment can be given because the administration of drugs has no effect upon the course of the disease. A highly potent immune serum is indicated, while intestinal antiseptics may be used, especially as a hygienic measure to prevent infection of healthy fowls. Very good results have come from the use of Avian Hemorrhagic Septicemia Bacterin and as soon as the disease is identified upon a given farm all the fowls upon these premises should be vaccinated to prevent further losses. Kitt found that the whites of eggs from immune fowls were protective when injected subcutaneously into susceptible ones.

Preventive measures cannot be urged too emphatically because it is very important to prevent an outbreak if possible, on account of the great losses that sometimes occur before an outbreak can be checked. As soon as the disease is detected, the sick animals should be isolated and thorough disinfection carried out. It is very necessary that the carcasses of all dead animals be deeply buried or burned. All droppings should be disposed of in the same manner, walls, roosts, drinking vessels, feeding pans should be carefully scalded or otherwise disinfected.

In white diarrhoea of chicks we have a disease which strikes at the heart of poultry raising because it is utterly impossible to successfully conduct a poultry business where practically all of the chicks are lost each season as a result of this disease. The loss to poultry raisers in this country has been enormous as a result of white diarrhoea, in many instances amounting to nearly 100% of the hatch and it is quite likely that no other disease of poultry comes anywhere near having the destructive possibilities of this one.

There is one advantage over hemorrhagic septicemia in that if properly treated in the early stages, a large percentage of the chicks may be saved. The manner of control, however, is very much more unsatisfactory because of the very unusual conditions attending the propagation of the infection in the flock.

There are two forms of white diarrhoea, one known as the bacillary

form caused by the bacterium pullorum, the other the protozoan form caused by the coccidium Tenellum. In certain localities one form predominates and in order to determine the cause of losses in any locality, it is necessary to resort to laboratory examination to determine which form or if both forms are present. One with a great deal of experience may be able to differentiate clinically, but even in that case it is not a reliable differentiation.

The principal symptoms of both forms are quite similar, except that in the protozoan form the heavy death rate takes place later, in other words, the climax of the disease requires a longer period to develop than in the bacillary form.

The chief symptoms are drooping of the wings, ruffling of the feathers, the chicks have a very decided sleepy appearance, no inclination to run about but huddle in bunches, have no appetite, and peep continually. In most chicks the abdomen is very prominent behind because of the unabsorbed yolk sac, which in normal chicks at this age, has practically disappeared. The very characteristic indication of white diarrhoea is the whitish or whitish-brown frothy discharge from the intestines, which has a tendency to adhere more or less to the fluff about the. posterior part and altogether the chick has a very unnatural, dirty, unsanitary appearance.

In the large majority of cases, the chicks are born with the infection and those which are born free easily pick it up from the contaminated eliminations of diseased ones. The bacterium pullorum has been isolated from apparently normal eggs, it has also been isolated from the ovaries of apparently normal hens and the incubation of the eggs also incubates the organisms within them so that when they are hatched the organisms may be present in large numbers. The result is that the chick is highly infected at the time of hatching.

In some instances where recovery has occurred, it simply means that there will be that many more carriers in the flock the following season. It can be readily seen therefore that the matter of eradication of bacillary white diarrhoea simply means extermination of the entire flock, under the present means of determination. Until some method may be devised whereby the fowls can be tested in a practical way, there can be no hope for effective eradication of bacillary white diarrhoea in infected flocks.

It is possible to detect the presence of the infection by the agglutination test but as a regular method of procedure this could not be considered very practical, especially in large flocks. It means securing a small quantity of blood from each bird, exercising great care in not contaminating one sample with the other. Some attempt has been made to develop a biological product similar to tuberculin and considerable work has been done by Ward and Gallagher to determine the most effective product and the most satisfactory method of administration. They found that a killed culture of bacterium pullorum, grown for about a month and held for several weeks before use, gave the most satisfactory results. They also determined that the wattle is the most desirable place for injection and that the 24-hour interval reading gave the most accurate results. The injection is made, using the intradermal method and this part of the test requires a great deal of experience because the proper placing of the point of the needle is very important in obtaining a significant reaction.

The lesions of white diarrhoea are more or less unimportant, usually we find the liver pale, showing areas of congestion, the most significant is finding of the unabsorbed yolk sac, the carcasses are invariably anemic and very emaciated. The principal point of differentiation between the lesions of the bacillary and protozoan forms is that in the latter there is quite extensive intestinal congestion with ulcers principally in the cecum. These are not found in the bacillary form.

So far as treatment is concerned, the best results are obtained by

preventive measures. So far no serum nor preventive biological products have been devised and it simply means that strict sanitary measures must be carried out and if possible, elimination of the disease carriers. It appears that dilutions of mercuric chloride have given good results as intestinal antiseptics in chicks. When used in dilutions of 1:10000, along with Phenol Sulphonates, very good results were obtained. Jones of Cornell found that solution of 1:1000 of bichloride of mercury would kill the bacterium Pullorum in 30 seconds, a 1 per cent. solution of carbolic acid required 5 minutes, a 1 per cent. solution of creolin required 5 minutes. It would appear then that mercuric chloride is 50 times as effective against this germ as carbolic acid.

After each hatching, incubators should be thoroughly fumigated and the chicks should not receive any feed for 48 to 72 hours and a solution containing zinc sulpho-carbolate, 15 grs., sodium and calcium sulpho-carbolate, aa 7½ grs., mercuric chloride 6 grs., citric acid 3 grs. in 1 gallon of water should be accessible from the time of hatching until they are 4 or 5 weeks of age. It was found that in a badly infected hatchery, following this treatment, 80 per cent. of the first hatch were saved after the loss of from 85 to 100 per cent. of previous hatches.

In tuberculosis of fowls we have another very important condition which requires careful consideration in view of the fact that is is becoming quite a menace to poultry raising. It has been reported more or less extensively in every part of the United States and Canada and in many of the experiment stations considerable work has been carried on.

There is no evidence at hand on which a reliable calculation regarding the actual damage, may be estimated, but from the work so far carried on, it is quite certain that a large percentage of fowls are infected with tuberculosis.

In one flock of 1460 fowls, 300 were reported to have died of tuberculosis. In another flock 200 fowls are reported to have died of this disease in a period of 3 years. In still another flock of 1400 fowls, 250 are reported to have died of tuberculosis in one year. Other records are at hand indicating that this disease is more prevalent than most people imagine. It is very probable that thousands of birds are killed or die annually and the presence of tuberculosis is not detected.

The cause, it is needless to say, is the bacillus tuberculosis, and while very interesting reports may be considered regarding the relation between avian and mammalian bacilli, time will not permit this part of the discussion.

As in all other transmissible diseases, the spread of tuberculosis takes its start either directly or indirectly from diseased animals. Since it is impossible for the avian tubercle bacillus or any other to grow outside of the animal body, under ordinary conditions, its presence must be due to the introduction of infection from without. In healthy flocks this introduction frequently follows the purchase of new birds and until some effective means of determination is devised, this menace cannot be prevented.

The introduction of live infected fowls is not the only means of transmission. There is no doubt that poultry purchased at butcher shops, for table use, are a means of transmission, the trimmings and offal from these carcasses, carelessly thrown out with garbage or other refuse constitutes a very effective means of transmission. It is quite likely that wild birds carry infection from place to place. It has been demonstrated that the sparrow is quite susceptible to avian tuberculosis and tubercular sparrows have been found which had access to avian tuberculous material.

The study of tuberculosis from the standpoint of symptoms is rather unsatisfactory inasmuch as the disease may be present for a long time without any clinical evidence. It is only after it has reached an advanced stage that sufficient lesions develop capable of producing clinical sym-

ptoms. These are usually in the form of anemia, emaciation swelling of the joints, extreme dullness and ruffling of the feathers. In the later stages the appetite becomes affected, birds become listless, are easily caught, and show every manifestation of a progressive, chronic infection.

As in all cases of tuberculosis, the tubercle is the only lesion. Among very interesting specimens received at our laboratories for diagnosis, we have found the livers to be the chief organs affected. These consisted of nodules scattered throughout the organs, varying in size from a pin-head to a pea, and a few larger. These nodules are firm surrounded by a rather firm connective tissue capsule. They are easily removed from the liver tissue, have a smooth surface and of a dull grayish appearance. Cross sections of these nodules present rather colorless, gelatinous or yellowish, friable and cheesy contents. The necrotic material is not liquified and not characteristic of us as seen in the nodules found in tuberculous animals.

The messentery, the walls of the intestines may be studded with tubercles but the liver and spleen are the chief organs affected, the liver being the one most commonly affected. As a result of the infection these organs are considerably enlarged and frequently distorted and should be immediately detected as an abnormal condition by any one experienced in the dressing of these carcasses. Tubercular lesions have been found in other organs, in the kidneys, lungs, the ovaries and testicles, but they are by no means the common form.

Perhaps the possibility of human infection by the avian tubercle bacilli is slight but certainly such a possibility must not be disregarded. The economical feature is doubtless the most important. When intestinal ulcers are present, the droppings contain enormous masses of tubercle bacilli, freqnently infected joints break open and discharge highly infective material, eggs from infected ovaries may harbor the tubercle bacilli and in many instances these organisms have been isolated from the whites of such eggs.

The matter of diagnosis is very important inasmuch as the disease may continue for a long time without being clinically detected. To this end, we believe it is possible to prepare a tuberculin, which may be used in isolating infected birds, the same as is done in detecting tuberculous animals in a dairy herd. Considerable work has been done along this line and it is now quite likely that in the very near future avian tuberculin will be accessible for the purpose of carrying on this very important work.

The test is of the intradermal variety and the only requisite is special training in technique of injection and reading results. It has been found that reactions in the wattles are much more constant and reliable than those in the comb. This is due to the difference in the structure of the two tissues, that of the comb being more dense and firm, while in the wattles they are more elastic and friable.

Treatment of tuberculosis is impractical and of no value in the control of the disease, but the prospects of successful prevention of avian tuberculosis cannot be any more discouraging than that which is being made in the elimination of the disease among larger animals.

In the consideration of these three conditions, I have attempted to cover all practical phases but there is still room for abundant study and discussion, which we hope will be brought out, at least, in part, following the reading of this paper.

DISCUSSION—Mr. Stout—In the San Luis Valley we have had some cases where chickens have died of cholera and on the same ranch found other classes of animals such as swine, sheep and cattle dying of hemorrhagic septicemia. I should like to know if the disease is transmissible from swine to fowls.

Dr. Salsbery.—I think it is.

Dr. Miller.—In many instances where sheep have died of hemorrhagic septicemia, the carcasses have been fed both to swine and to fowls with no bad results. It appears therefore in this case that the disease is not transmitted.

ABORTION DISEASE IN CATTLE

A. T. Kinsley

This is an interesting and important subject and, according to many reports, it is probably the most important disease of cattle in this country at this time. As a result of investigations it has been found that this disease is wide spread in practically all of the eastern states and until recently it was not thought to be found in any great amount of herds west of the Mississippi river, but by correspondence with veterinarians throughout the middle west, we are led to believe that a large percentage of the herds of dairy cattle and pure bred beef cattle are more or less affected with abortion disease.

Recently at a conference of cattle men in Texas, it was found that many of the large herds of cattle under range conditions were affected with this disease to such a degree that a loss of 80 per cent. of the calves was not unusual.

The term infectious abortion, or contagious abortion that was formerly used, is not a good term to designate the disease in question, as abortion is only a symptom of the disease under consideration. It has been suggested that the term abortion disease be applied and it seems probable that this would be a wise selection of terms as it includes more than the mere term infectious abortion.

Abortion disease may be defined as a specific infection, characterized by metritis, retained placenta, abortion, mammitis, calf scour and pneumonia.

The cause of abortion disease is probably the B. abortus; however, according to recent literature, it is apparent that various other microorganisms are not infrequently associated with this disease. Some ranch men are also of the opinion that feed is a very important factor in the control of abortion disease. Western North Dakota, South Dakota and Nebraska, during the spring of 1919, according to reports, lost a considerable percentage of their calf crop and, from investigations, it has been stated that this disturbance in cows was primarily brought about by insufficient food or lack of nutrition. There seems to be little question but what improper food predisposes to oabortion disease as it may also predispose to other conditions. The B. abortus has been demonstrated in the uterine discharges of a large percentage of aborting cows; it has also been found in the digestive tube of aborted calves and it is not uncommon to find this organism practically in pure cultures in the lesions of pneumonia of fatal calving pneumonia that are produced in abortion herds. This germ has also been demonstrated in the milk of cows. In one instance, the investigator demonstrated the presence of this organism in the milk from one particualr cow for seven consecutive years, and yet the cow in question has never aborted and from the statements of many it would appear that the mammary gland is frequently infected with the B. abortus and that milk is a ready means of distribution of said germ.

The virulency of abortion disease is variable. From all available reports we are led to believe that abortion disease is much more severe in the eastern sections of the United States than it is in the central or western portions. This is not at all unusual as cattle in the different sections of the country are maintained under different conditions.

The most serious sequence of abortion disease in the cow is sterility and this condition may not be the result of the activity of the B. abortus

but may be produced by the action of various invaders such as the B. coli communis, staphylococci and streptococci and other micro-organisms.

The characteristic lesions of abortion disease consist of a putty like exudate on the uterine mucosa and inflammation of the mammary gland. In the calf the primary lesions consist of an enteritis or croupous pneumonia, depending upon the localization of the process in the calf body.

Some have advocated quarantine for the prevention and spread of this disease, but it would appear to be extremely difficult to isolate aborters and carriers of the B. abortus from healthy cattle; in fact, so far as the present means of identification of the presence of the disease is concerned, it would not be possible to do so. From experiences it has been found that the B. abortus is eliminated in the uterine discharges for a period of about two months after abortion, but is not ordinarily dangerous after that period of time and therefore the isolation of such animals for such a period would be advisable. On the other hand since the cow eliminates the causative organisms in the milk more or less continuously and may not show any evidence of the disease, it would seem futile to attempt to control this disease by quarantine regulations.

DISCUSSION:—Dr. French.—Some of you will remember that there was a meeting called at Cheyenne by Dr. Potter of the Buerau of Animal Industry two or three years ago at which many of the western state and college veterinarians were present.

I had been accustomed to sending in blood samples for agglutination tests, and out of a dozen two or three might be positive and the rest negative. All of these samples had come from aborting animals and there was of course reason to believe that all should have been positive, if any were. I asked Dr. Potter at the time regarding this and he admitted that the test was not perfect. I should like to ask those present what they think of the reliability of the blood test for contagious abortion.

Dr. Kinsley.—The blood tests are not entirely reliable for this disease since there are aborting animals that will not react and there are animals that react that never have aborted and may never abort. In a general way the test can be depended upon to locate infection but it merely means the presence of antibodies for the Bang bacillus in the blood.

Dr. Jungerman.—After several years experience, I consider the symptoms other than abortion as being of the utmost importance. I find that in herds where there have been no abortions for several years, yet where difficulty has been experienced from mammitis, scours in calves and sterility, that all of a sudden there may be a loss of 30 per cent by abortion in a period of four or five months. In some cases, I find an enormous amount of exudate which is typical of abortion and yet the animal give birth to a live calf. In some instances there is much adhesion of the placental membranes. I have spent as much as from 35 to 40 minutes attempting to loosen these membranes and then failed. In these cases, I use the uterine capsules and consider them better than irrigation. We have been told that the disease will wear itself out and that cattle will become immune, but this has not been my experience. There may be periods of quiescence when there are few abortions, possibly lasting five or six years, but generally the calf loss will break out again unless the herd has been properly treated. While the abortion bacilli are doubtless responsible for most of the trouble, there can be no doubt that secondary invading organisms cause considerable trouble.

Much has been said that the veterinarian is dependent for his livelihood upon the stockman, and while this is true, I feel that the formula should sometimes be reversed since in handling this abortion problem the man who handles pure breds is absolutely indebted to the veterinarian for his existence. It is under these conditions that the veterinarian's

work is highly appreciated, as the very industry itself is dependent upon his skill.

Dr. Salsbery.—My experience has been limited wholly to the laboratory end of this work as I have made no field observations. From the laboratory standpoint, I can say that blood tests are not wholly reliable, but with an undestanding of their failings, they are a valuable means for determining infection in the herd. I should like to ask Dr. Kinsley how he accounts for sterility in heifers.

Dr. Kinsley.—Sometimes heifers are too fat. Depletion will frequently overcome the sterility in these animals. It is pretty generally believed that there is no evidence of abortion disease in virgins.

Dr. Jungerman.—I should like to know if the ovaries were examined in these heifers as I find that frequently if the ovaries receive attention the heifers will conceive.

Dr. Kingman.—I should like to ask if we should let retained placenta alone. We were told by Dr. Potter here a few years ago that placentas should not be removed but should be left to loosen and come away of themselves.

Dr. Brady.—I think they should be removed in all cases.

Dr. Morgan.—I find that if we do not remove the placentas that the animals die. I like to remove them in 24 to 48 hours and find that I have great difficulty unless this is done.

Dr. Fisk.—I had some experience on a ranch where there were seven or eight hundred heifers that had abortion. Inasmuch as these were range animals, it was not feasible to remove the placenta but the result was very unsatisfactory. Emaciation and sterility followed in a large number of instances. I suggest as a general proposition that the placenta should be removed within 24 hours.

Dr. Brady.—What about irrigation?

Dr. Jungerman.—I like to remove the placenta within twelve hours, I take away all that will come at this time but do not tear if there is much adhesion. I then irrigate with a mild antiseptic solution and massage the uterus in order that it shall empty itself. Where I leave only a small amount, it appears to be absorbed.

Dr. Glover.—It has been my experience that flushing of the uterus is highly undesirable and frequently results in much pain and straining on the part of the animal and often in serious metritis with death. Dr. Work who owned one of the best herds of Holsteins in this State would never allow flushing of the uterus following the removal of the placenta.

Dr. Kinsley.—I think some cows are more susceptible to infection than others. I am sure that if we did not flush in Missouri, we would lose a larger percentage of the animals.

Dr. Morgan.—I find all antiseptics very irritating so I use a normal salt solution only. I find, however, that where there is infection, flushing is necessary.

Dr. Fisk.—All cows need not be douched, so that I think our cases for this practive should be well selected. If there is infection, then douching should be done. If there is no infection, then douching is not only not necessary but is likely to introduce infection. I use a mild solution of potassium permanganate with good results.

CLINIC IN CHARGE OF DR. H. E. KINGMAN

Case No. 1—Brown horse 12 years old.

History.—Was in a runaway several days ago. Fell in the road while driving on the day of entry.

Symptoms.—Lacerations in the region of the fetlock joints of both

hind limbs. Hips bruised and abraded. Some places on the head and fore legs denuded of hair.

General Treatment.—Daily irrigations with Dakin's solution. In spite of this, however, infection continued so that the patient died of septicemia on June 15, 1919.

Case No. 2—Gray mare age 16.

History.—Horse suffered from rheumatism for several years.

Diagnosis.—String halt, resulting from rheumatic contraction of tendons.

Treatment.—Fired over the region of the right fetlock joint. Condition improved when discharged.

Case No. 3.—Two Duroc Jersey pigs submitted by Dr. A. H. Griffiths of Montrose with the following history. These pigs were from a lot which had previously shown evidence of hemorrhagic septicemia and had been vaccinated with swine plague bacterin. All treated either showed signs of recovery or failed to come down with the disease excepting about ten which continued with a chronic illness. One of the pigs was slaughtered and posted. It was considerably emaciated. The lymph glands throughout appeared normal. There were firm adhesions of the pulmonary and costal pleura and of the pulmonary pleura and pericardium to the heart. There were also numerous peritoneal adhesions. The diagnosis was chronic swine plague.

Case No. 4.—Brown gelding 17 years old.

Diagnosis.—Nasal tumor.

History.—The growth was first noticed four years previously and had been increasing since that time. Operator Dr. A. G. Fisk. Portion of the tumor was removed through the right nostril, on June 6th and on the 17th more of it was removed through the left nostril. At the time the horse was discharged the breathing was considerably improved.

Case No. 5.—Black mule.

History.—Tumor on nasal septum. Portion of the mass was removed on the 8th and a portion of the nasal septum removed on the 16th. The nostrils were swabbed with tincture of iodine and irrigation was continued daily with Dakin's solution. When last heard of the mule was growing worse.

Case No. 6.—Brown mare two years old.

Diagnosis.—Congenital umbilical hernia. Operator: Dr. W. G. Blake. Radical operation was successfully accomplished, followed by excellent recovery.

Case No. 7.—Gray gelding.

History.—Inflammatory condition of the carpal sheath. Fired by Dr. McCarroll. Condition improved when discharged.

Case No. 8.—Brown mule six years old.

History.—A year previously this mule had shown a small nodule in the region of the left fetlock joint. The condition had spread up the leg, showing some nodules as large as a hen's egg. The mule was in excellent condition. Mallein tests and agglutination test for glanders had been negative. Bacteriological examination had shown the presence of Bacillus Preisz. Prognosis was given as questionable. However, the mule was placed on the table and the ulcerated areas curetted and a 4 per cent solution of formaldehyde applied. At last report the owner had decided to destroy the animal.

Case No. 9.—White dog. Operation ovariotomy. Operator Dr. Grange. Result favorable.

Case No. 10.—Yellow dog. Operation ovariotomy. Operator Dr. Grange. Results successful.

Case No. 11.—Gray filly 2 years old. Diagnosis: Congenital umbilical hernia. Operator: Dr. H. E. Kingman. Radical operation was accomplished with complete recovery.

Case No. 12.—Bay mare. Diagnosis: Cystitis.

History.—Calculus had been removed from the bladder by Dr. McCarroll at a previous date. Mild antiseptic irrigations were recommended but the result is unknown.

Entertainment

The Association was entertained at luncheon on the first day of the meeting by the Jensen-Salsbery Laboratories of Kansas City, and on the second day at the same hour by the American Veterinary Supply Company of the same city. During the afternoon of the first day, the ladies were entertained at tea at the home of Mrs. R. F. Bourne. During the evening all attended the annual banquet and ball of the Veterinary Medical Association of the Colorado Agricultural College.

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